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WILLIAM B. ASTOR.

READER, what are your impressions in regard to this head and face? Were the portrait printed without a name, what would you say of it? Analyze the features, observe the shape of head, study the temperament, then sum up the character. That is clearly a German type of face, a German head, and a German body. The brain is not large, but in fair proportion to the size of body. The intellectual lobe is full, the per-

ceptive faculties predominating over the reflectives. The eyes are the finest features of this face. They are not large, but expressive, set well apart, and have a scrutinizing look which seems to measure accurately whatever they see. Order and Calculation are among the largest of his phrenological organs. Method and computation would be instinctive to such a brain. There is enough Firmness to give decision and perseverance; enough Self-Esteem to give assurance and self-reliance; enough Acquisitiveness to render him prudent and economical in expenditure and sagacious in investments; but there is not enough love of approbation to make him care for public applause, display, praise, or blame. He enjoys a happy indifference as to what we or others may say of him. He minds his own business, and expects others to mind theirs. There is very little poetry, imagination, or fancy in that head. He is no inventor, schemer, or projector. Instead of trying experiments or running after new notions, he sticks to the real, to what he knows, and will take stock in no problematical oil wells, railway projects, or in any games of chance. This is a truly conservative nature, one that seldom changes its course, and cares little or nothing for social, political, or religious agitations.

So much for the portrait, which we do not claim to be a fine likeness of Mr. Astor, but which is the best we have been able to procure.

Among the moneyed men, of whom there are so many in the United States, William B. Astor is conspicuous. Perhaps he owes his reputation, in great part, to the fame acquired by his father, John Jacob Astor. Every one knows how the latter, at the age of twenty, left his home in Baden, walked to the nearest sea-port, and there engaged a passage for New York, spending his last penny in this effort to reach the New World. On the voyage he sold a half-dozen flutes, which were given him by a brother then residing in London. Twelve dollars were the result of this little business operation, and laid the foundation of his princely fortune. From that small beginning he steadily rose, until he established the American Fur Company, and had his agencies wherever the *materiel* of his business was to be procured, and at his death left an estate valued at not less than $20,000,000.

William B. Astor, whose energy, executive ability, and prudential measures have greatly expanded the colossal fortune inherited from his father, was born in New York, in March, 1794. At the time of his birth, New York had a population of but 30,000. George Washington was still alive; Thomas Jefferson was President of the United States; Napoleon Bonaparte was entirely unknown; the French Revolution was filling the world with horror; and American affairs in general were settling down after the violent agitations of the late Revolution. Bowling Green was then the center of metropolitan trade. Vesey Street, although but half a mile or so above Bowling Green, and now a far down town thoroughfare, was in the rural suburbs; Wall Street and its vicinity was the fashionable quarter, the residence of the city's grandees.

Young Astor received such opportunities for education as were then procurable in the city for a lad, and his father, thinking there were better advantages in fatherland, sent him to Heidelberg. He remained there several years. His university studies finished, he returned home, where he remained a short time, and then revisiting Europe, traveled considerably, stopping here and there to examine places of historical and classical interest. On his return his father remarked:

"You have shown the good effects of your university education."

"In what particular?" asked William, knowing well that there was some joke in the wind, for no one was fonder of indulging in pleasantry than his father.

"I expected you would spend $50,000, and you have only drawn on me for $10,000."

"I am glad you are pleased," said William; but to this day he confesses himself in doubt as to whether the old gentleman meant the remark in commendation or in reproof of his traveling expenses.

He entered his father's office, and not long afterward became associated with him in the business, and in the last few years of his father's life he had the entire management of it. An uncle, by the name of Henry Astor, died before his father had "shuffled off this mortal coil," leaving William half a million of dollars, which amount was judiciously invested, so that

long before he stepped into his father's shoes he was a man of enviable wealth. The Astor House, that famous caravansary, was built in 1835, on the site of what was John Jacob's residence, which, in itself, was a very respectable house in those early days of the city's growth. The story of John Jacob's sale of that vast hotel to his son is well known. Shortly after its completion, the old gentleman and his son were viewing it, when the former remarked, "How do you like it?"

"I am very much pleased with it," William replied.

"So you like it?"

"Yes."

"Give me a dollar and the building is yours."

Many have doubted this story, but it is true, and William was not long in paying over the dollar and consummating the bargain.

It was about twenty-four years ago that John Jacob Astor died and was buried in the vault of St. Thomas Church. In his will, a most elaborate legal document, William B. was indicated as the principal legatee. His patrimonial inheritance, with what he already possessed, made him the richest man on this continent. The first thing he did after coming into possession of this estate was to carry out the bequests of his father. He sent one of his own sons to Waldorf, in Germany, where his father was born, to superintend personally the disposition of certain funds bequeathed for the establishment of a charitable institution. A building was erected and $43,000 invested for its permanent maintenance. The aged and infirm, irrespective of color or religious belief, orphan children from the ages of six to fifteen left without support, blind and deaf and dumb persons, and homeless infants are there provided with a comfortable home. The name of the institution is the Astor House, and is now in a most flourishing condition.

"I take great pride in the Astor House of New York," Mr. Astor has been heard to say, when referring to this institution, "but a greater pride in the Astor House of Waldorf. The massive granite blocks and pillars of the former may crumble and fall to the ground, or its columns and corridors become choked with weeds, but the latter will continue in existence while the town of Waldorf exists and there are any poor people in it."

To Fitz-Greene Halleck, the well-known poet, and who had been the friend and secretary of his father, he said, "My father has done you great injustice."

"In what respect?" asked the poet.

"Leaving you only $200 as an annuity."

"He paid me for all the services I rendered him, and I had no additional claim on him."

"I think you have claims on the estate," pursued Mr. Astor, "and as a mark of appreciation I have raised the annuity to $1,500."

"Thank you, thank you," spoke up this noble and gifted son of song, and he could say no more. The closing years of his beautiful but sad life were by this act of timely liberality lifted above care, and his pathway to the grave strewn with pleasant flowers.

To a sea captain who had been in his father's employ for many years, and who had conducted himself with rare fidelity on more than one occasion of embarrassment and imminent loss, he said:

"You saved a large amount of property in China for my father."

"Yes; your father's agent died, the property was imperilled on this account, and I saved it and turned over to your father $700,000."

"And he never paid you anything?"

"Not a dollar."

"I'll pay you," and he filled out a check for $25,000 and gave it to the captain.

One of the noble provisions of John Jacob Astor's will was for founding the Astor Library. It was faithfully complied with, and any one who is familiar with that short and airy street, just far enough removed from Broadway to be retired and quiet, Lafayette Place, needs no special hint to point his attention to that beautiful building in which is stored the most valuable collection of books on this continent. The original edifice had a frontage of 65 feet, and a depth of 120 feet, with huge arched doorways and windows, and a tasteful keeping generally with the grand purpose to which the building was dedicated. Mr. William B. Astor was not satisfied with the building which had been erected pursuant to his father's will. Appreciating the beneficent results of a valuable library in the midst of a growing community like New York, he saw that it was quite essential to expand the work so far done. He put up an adjoining building of about the same magnitude and plan of the first, and expended $200,000 in additions to the list of books. It is said that Mr. Astor has expressed the purpose of erecting another building of the same size of that already built, and then providing still further for the increasing wants of our increasing population; and he has intimated that he aims to make the Astor Library as valuable a depository of books as any in the world.

Mr. Astor has none of his father's liking for trade. As the large accumulations which rolled up the mighty fortune of his father were due to the enhanced values of his investments in real estate, he early turned his attention to real estate and long leases of property like that of the Trinity Church Corporation. His memory is said to be wonderful, that it is so retentive that he can tell every square foot of property which he owns, the exact date when each lease expires, and the amount due on it almost to the penny.

He lives in Lafayette Place, close to the library, in a handsome though somewhat old-fashioned brick house, which was built and given to him by his father. His manner of life is exceedingly plain for one in his position. He takes excellent care of his health, being prudent in his habits, fond of walking, and indisposed to ostentation or luxurious equipage.

In stature he is fully six feet, with a heavy, strong frame, coarse features, small eyes, and a physiognomy in general by no means impressive. So constitutionally strong and well-preserved is he, that no one seeing his erect figure and brisk bearing would suppose him to be as old as he is by at least fifteen years, and he appears likely to see his hundredth birthday. His face is full and ruddy, with slight side whiskers. He dresses plainly, and avoids anything like parade.

He is reported to be very charitable on occasions, but those who claim to know him well say that he is less liberal than his father was. He rarely gives to solicitors for charity, and among those who make it their business to collect money for benevolent enterprises he has the reputation for extreme closeness and parsimony. During business hours he gives attention solely to business; outside of this he shows a liberal spirit, provided he finds the object that has been recommended to his attention to be worthy; but his charitable offices are done in a very private, reserved way, as he has no ambition to gain a reputation for munificence. Mrs. Astor may be her husband's almoner in great part, as that lady has a most estimable character for genuine benevolence. It is true enough that the public is very exacting of the wealthy, who are roundly abused when they decline to open their purses at its dictation, and, as a class, they are so besieged and importuned with applications, to say nothing of their being imposed upon and cajoled, it is not at all unnatural that they should become somewhat hardened to solicitation. If Astor or Stewart responded to all the calls made upon them for assistance; if they permitted themselves to be frightened into compliance with the threats of black-mailers, they would be beggared in twelve months. We hear people in cramped circumstances now and then declaring that they "would be so liberal" if they had large incomes; and from the many experiences which we have in the way of the manifest parsimony of individuals suddenly grown rich, we feel warranted in saying that we have no confidence in such declarations.

Before closing this somewhat long sketch, we may say, in reply to the question which has occurred doubtless to the reader, "How much is he worth?" that we do not precisely know; and it is said that Mr. Astor himself would be somewhat at a loss to answer it with exactness, but some sanguine individuals estimate it at $75,000,000, and it increases rapidly every year with the advance in New York real estate. As to his income, we are told that it exceeds that of the Emperor of Germany. The same, however, may be said of Stewart and Vanderbilt.

Mr. Astor married Miss Armstrong, daughter of General Armstrong, Secretary of War under James Madison when President of the United States. Six children have been born to them, three sons and three daughters, all of whom, except one daughter, are living and have families of their own. They reside chiefly in the city of New York.

ANCIENT HUMAN CRANIA.

DURING the interesting proceedings of the late meeting of the Social Science Association at Dubuque, Iowa, Dr. J. W. Foster, of Chicago, presented some peculiarly-shaped human skulls, and some drawings descriptive of others as strangely formed, on which he commented as follows:

There have been several skulls discovered in Indian mounds widely separated as to locality, which seem to have a common type utterly unlike those of any other known human crania. These skulls, taken respectively from two groups of mounds, about five miles apart, on the Des Plantes River, in the vicinity of Chicago; from the neighborhood of Merom, a station on the Cincinnati and Terre Haute

Railway, Indiana; and from the vicinity of Dunleith, Illinois, just across the Mississippi from Dubuque, Iowa, present these marked peculiarities in the most extreme degree. In the first of the two groups of mounds near Chicago, portions of eleven skeletons were found; but only one skull and three frontal bones were sufficiently well preserved to admit of measurement and comparison. The other group of mounds yielded human remains evidently belonging to two distinct eras, one of which must have been exceedingly recent. In addition to these were found, nearly on a level with the original surface, many skulls far gone in decomposition, and presenting peculiarities not appertaining to the existing Indian. To these Dr. Foster is inclined to assign an antiquity of several hundred years, and thought them to be undoubtedly those of the Mound Builders, and of the highest value to the antiquary.

So abnormal was the appearance of these skulls when first discovered, that Dr. Foster had difficulty in satisfying other investigators that these skulls had not been subjected to compression. But the shape is entirely different from that of the Indian skull or any other, compressed or otherwise. The skulls of Europeans (Caucasian) and of American Indians were compared with the Mound Builder. The Caucasian skull is developed more completely than the Indian in every direction, except in a nearly horizontal line thorough the head, somewhat above the ears, and is somewhat boat or egg-shaped; that of the Indian somewhat approaches the shape of a block with the corners rounded off. [In fact, it is quite conical, Firmness and Self-Esteem jutting out conspicuously at the top, and Destructiveness, Secretiveness, and Combativeness being very marked at the base.] But the Mound Builder's skull is like that of a bird, and needs only a beak to complete the illusion. It rounds down equally from the apex to both front and back, with no forehead worth naming. [In other words, the perceptive faculties are apparently the only division of the intellect represented in the brain, so immensely do they predominate over the others.]

The measurement of one of the Chicago skulls, as determined by Dr. Bridge, is as follows: Circumference, 20.25 inches; around longitudinal arc, 15.5 inches; vertical height above the glabello-occipital line, 3.8 inches; extreme longitudinal measurement, 7.6 inches; extreme transverse, 5.75 inches. The skull is not quite symmetrical. Its general outline is dolchico-cephalic. Its differences, compared with a European skull, are, notably: the large development of the superciliary ridges, the greatly depressed forehead, the occiput not merely flattened but forming an oblique line upward, while it occupies the extreme posterior part of the skull. Three skulls from the Kennicutt mound exhibited remarkably prominent supra-orbital ridges and peculiarly retreating foreheads; one of these being even a more retreating forehead than that of which the measurement is given above. "I think," says Dr. Foster, "that no one can view this fragment, with its great, massive superciliary ridges, its low, flat forehead, and its thick, bony wall, without coming to the conclusion that its possessor when alive must have been essentially a ferocious brute. Of two crania from the Hass' Park mounds, one is distinguished by almost the entire absence of a forehead; the orbital rings are sharp, without the least sign of a superciliary ridge; but the region of the glabella rises up in a ridge, and the nasal bones are projected like the beak of a bird or of a garpike. The skull is only of the thickness of pasteboard. The brain capacity is not large. Without indorsing Phrenology, Dr. Foster thinks it may be admitted that observation justifies the assignment of particular faculties of particular parts of the brain: as, the seat of the intellectual faculties in the anterior lobe, of the propensities which most link us with the brute in the middle lobe, of those that appertain to the social affections, in the posterior lobe. Judged by these tests, we may infer that the Mound Builders were not as intellectual as the Indian, but less crafty and cruel."

[Without assuming a captious spirit, or appearing hypercritical, we may venture a remark or two here with reference to the measurements given above. Inferentially, as we have had no opportunity to examine these crania, we think that the order of mentality was not quite so low as the learned Doctor is inclined to rate it. The circumference, twenty and a quarter inches, is by no means insignificant as compared with the modern average of twenty-two inches. The height, three and eight-tenths inches, to be sure, is nearly two inches less than a modern European's cranial depth, but the length and breadth are about the modern average.

The *quantum* of brain being for the most part due to the depth of the cranial cavity, a close comparison of the skull of an average member of our modern civilization with one of the "bird-shaped" would indicate a very great difference in favor of the former, and its rela-

tive mental superiority. The Indian occupies an intermediate position between the Mound Builders and the White, with, however, a larger development of the lateral region of the brain contiguous to the ears. It would be difficult to analyze these ancient skulls and predicate of their comparative mental qualities without the assistance of Phrenology, although some of our scientists, unlike the eminent Professor Morton, take some pains to express their disbelief in the tenets of Phrenology, and in the same breath give utterance to views confirmatory of phrenological principles. Where does Dr. Foster find so definite a division of the brain as that which he summarily enunciates, in his address with the proofs, except in the writings of phrenologists, or in the speculations of those who have borrowed the solid matter of their hypotheses from phrenologists?]

Dr. Foster then went into an analysis of the peculiarities of ancient Peruvian and Aztec skulls, and compared them with North American Indian skulls and the skulls of the Mound Builders. The similarity between Peruvian and Mound Builders' skulls is noticeable. Dr. Lund, a distinguished Swedish naturalist, says: "The human figures sculptured on the ancient mounds of Mexico represent, for the greater part, a singular conformation of the head—being without forehead, the cranium retreating backward immediately above the superciliary arch. This anomaly, which is generally attributed to an artificial disfiguration of the head, or the taste of the artist, now admits of a more natural explanation, it being proved by authentic documents that there really existed in this country a race exhibiting this anomalous conformation. The skeletons, which were of both sexes, were of the ordinary height, although two of them were above the common stature. These heads, according to the received opinion in craniology, could not have occupied a high position intellectually." Rivero and Tschudi believe that the artificial disfigurements of the skull among the Inca-Peruvians owe their origin to the prior existence of an autochthonous race having this peculiarity; and they further state that such peculiarities are in some cases congenital, having been found in the fœtus in Peruvian mummies. As to the shape of the skull being produced by compression, Professor Morton has pointed out that where this is attempted the volume of the brain is not diminished, but simply transferred to parts of the head where the pressure is not applied. Dr. Foster had examined skulls of the Flathead and Chinook Indians where the forehead is depressed, but there is an enormous prolongation of the posterior region, and the line between the occipital protuberance and the intersection of the lamboidal sutures, instead of being vertical, as in the normal state, is curved outward, so as often to bring the occiput point beneath the skull, and in a line with its base. The back-head of the Flathead Indian, as drawn by Dr. Foster on the blackboard, was not unlike that of the ladies of two or three years ago when the round waterfall on the back of the head was fashionable. But on examining the skulls of the Mound Builders it was evident that there was no such swelling at the back. The occiput forms the extreme posterior part of these skulls, from which the line of the cranium curves upward and inward. Moreover, it has been shown that wherever bandages have been used for depressing the skull, it is marked by bony ridges or depressions, which do not exist in the skulls in question. It may be safely asserted that there are certain coincidences in the configuration of the head between the primeval inhabitants of Brazil, the temple-builders of Peru and Mexico, and the Mound Builders of the Mississippi Valley.

In the discussions that followed the exhibition and analysis of the crania, Dr. Foster said that Professor Morton had placed too much emphasis on what he called typical types. Nevertheless here were facts which could not be thrown aside. Among the bones disinterred at Merom, Indiana, there were also thigh-bones of which the shape of the femur was peculiar and different from that of Europeans. Col. Forshey asked whether these differences of cranium and femur justified the announcement of a new species of man, to which Dr. Foster replied in the negative. Professor Putnam thought we had scarcely a sufficient number of these low-browed skulls to assume that they were typical of the Mound Builders. A large majority of the skulls taken from these mounds were not of this extreme form at all—they were of the box-shape or Indian skull. At the utmost he thought that if there were originally a race of Mound Builders with low foreheads, it was absorbed or driven south again long before the Mound Builders, as such, ceased to exist. Professor Winter announced a new locality of mounds and skulls in Michigan. A few specimens of the real Mound Builders' skulls had been found there; not quite so much depressed as those shown here, but an intermediate form between the Indian and the extreme Mound Builder. Dr. Foster stated that

Dr. Wallace collected sixty skulls from the Malays and found every variety of race forms, apparently, among them. The skulls of any given race differ widely among themselves. Dr. Foster did not wish to be understood as saying that the Mound Builders were a race exclusively having depressed skulls; but he considered the coincidence of these numerous discoveries indicative of the fact that large numbers of men of this remarkable conformation must have existed among the Mound Builders.

[Should any of our readers who have not given much attention to the shape and contour of heads examine carefully those of their friends, taking measurements and sketching their horizontal and vertical outlines on paper, they will be surprised by the variety which will thus be discovered. Even among members of one family will be found marked variations. Hence it may be seen that the skulls shown by Dr. Foster do not *necessarily* indicate a different species or race of the Mound Builders, but may be the relics of individuals of the same general family who were not so happily endowed as their brothers. If those skulls, however, exist in large numbers, the lapse of time since their owners lived in them being of course considered, the presumption would be but fair that they represent a different class of human thought and life, a closer approximation to primeval man.]

Department of Religion and Psychology.

Know,
Without or star, or angel, for their guide,
Who worships God shall find him.—*Young's Night Thoughts.*

The soul, the mother of deep fears, of high hopes infinite;
Of glorious dreams, mysterious tears, of sleepless *inner sight.*—*Mrs. Hemans.*

MAN AS AN INHABITANT OF TWO WORLDS;

OR, THE TESTIMONY OF CONSCIOUSNESS.

BY HENRY C. PEDDER.

IF in addition to the testimony of revelation we required any evidence relating to the dual character of our existence, and the relationship which we bear to the visible and invisible worlds, we could not long remain in doubt if we attended carefully to the peculiarities of our nature and the profound mysteries which our consciousness suggests. Formed as we are as to the *esse* of our nature by a Power which it is impossible for even the highest intellect to comprehend, and sustained as we are as to the *existere* of our nature in a manner that equally transcends our finite capacities, it does not appear that we can ever realize *thoroughly* what may be termed the mystery of life. And it does appear that we are so constituted as to *feel* that we are related simultaneously to two classes of phenomena, constituting the *sine qua non* of human existence. And this it is which shall form the subject of my remarks; at the same time I will endeavor as far as possible to illustrate the supremacy of mind over matter.

It may be true that the fact of our consciousness is in itself but a phenomenon, and, therefore, dependent on something higher as its cause. This is to a certain extent undeniably true; but it is also quite as true that as it is the fundamental verity which renders existence possible, and as it expresses itself under all conditions of human life with certain degrees of consistency and similarity, it commends itself to us as the great basis on which to rest all our ideas of human nature, if not the great ocean of life to which all other circumstances and conditions are but so many tributaries. As it expresses itself under its various forms, and manifests itself in keeping with certain conditions which largely influence its method of expression, it will at times seem a little inconsistent with itself, and in many respects exceedingly weak and unreliable. But even here, if we are careful to observe the general tendency, there may still be seen the evidences of a universal principle running through and pervading the world-wide character of human consciousness.

Indeed, "the disposition of the human soul to seek for its own prototype, and to start at its own shadow in the outward universe," is a fact which is so clearly established and so generally confirmed as to leave no room what-

ever for doubting its universality and profound significance.

In one form of its expression it may be that of the poor red-skin "living in continual apprehension of the unkind attacks of spirits, to avert which he has recourse to charms, to the fantastic ceremonies of his priest, or the powerful influence of his manitous." In another it may be that of the North Australian native, "who will not go near graves at night unless he carries a fire stick to keep off the spirit of darkness." In another it may be that absurd superstition which induces the women of Greenland, during an eclipse, to pinch the dog's ears with the view of ascertaining whether the end of the world is at hand. In another it may be that peculiar notion of the Fijians, according to which they believe that "the spirit of a man who still lives will leave the body when asleep to trouble other people." In another it may be that extraordinary belief in witchcraft which prevails so largely among all uncivilized nations. In another it may be the beautiful Grecian myth of Psyche, embodying and expressing the immortality and gradual purification of the soul. Lastly, it may be under that condition of life and habit of thought with which, as members of a Christianized civilization, we are all familiar. Now, under all these conditions there is obviously a very great difference in the effects produced; but yet if we examine them closely there is a family resemblance which establishes the belief that they emanate from, and proceed according to certain inherent qualities of the human soul which are inseparable from the circumstance of human life. Beginning, if we please, our point of observation from that period in human history when the believers in "original purity" would represent man as surrounded by everything that is beautiful and chaste; or when, as the ancients represented it, Astræa, in the form of a beautiful maiden, dwelt on earth, blessing men and rendering them happy by her divine presence, and following him through every diversified stage of his existence until we reach him in that low condition of barbarous life when he has no religious conception otherwise than of evil deities, he is still, as regards the great substratum of his nature, a man. In many of his propensities, in many of his ideas, it may be very difficult (under this last phase of his existence) to discriminate between him and the Simia; but even here there are general evidences and indications which impress every thoughtful mind with a sense of their significance. With respect to the exercise of his rational faculties, he may be a mere infant; with respect to his attainments in general culture, he may be comparatively less in stature than Gulliver's Lilliputians; but as a man, as a living soul formed for the reception of influences from the external world, and the association of these influences with his spirit as a human being, he is governed by one common law, which, operating universally on the entire domain of human nature, develops a certain class of feelings which can only be referred to the fact of our consciousness.

Nor is it anything against this view of human nature to argue that it partakes too much of the "exploded" doctrine of "innate ideas." As it is intended, and as I trust it will be interpreted, its definition is not to be found in this direction, being instead merely an expression of that germinal principle from which all ideas necessarily emanate, and without which it would be impossible to *feel that we live.*

As a consequence arising from the close resemblance which the lower animals bear to man in many respects, I know that the simple association of ideas is predicable of them as truly as it is of man. But between this and the germinal principle interwoven in our consciousness as human beings, there is a wide difference which we can not consistently overlook. With the animal there undeniably exists the ordinary power of sensation and the train of ideas which this feeling begets. With man there is a naturally intuitive sentiment which, while it comprehends all ideas that can come within the experience of the animal, also rises into a higher region wherein the soul, in some form or other, makes for itself a deity, seeking thereby for a responsive utterance to its own mysterious nature. By some scientists I am aware that it is very much questioned whether this feeling of intuition and this testimony of our consciousness are of any weight in strictly determining whether we are or are not possessed of an immortal nature. But clearly the universality of the sentiment, and the power which it exercises over each one of us, must be of some weight in enabling us to realize the verity of a matter which is beyond the range of sensuous perception; and to which even so great a scientist as Professor Huxley alludes in his article on "The Use of the Imagination in Scientific Thought," as being of the greatest value in enabling us to realize the profound character of our existence and the relation which it bears to the Infinite.

Indeed, the relation between the visible and

invisible worlds is so exquisitely perfect that it becomes impossible for us as human beings to look on the one without feeling that we are in some measure looking also on the other. For instance, the beauty of the material world addresses itself to our senses, and what is the result? Is it that we merely look upon it as an unmeaning picture, bearing no suggestions, no higher signification than the materialized expression of a lifeless beauty? Is it that we gaze day after day, night after night, upon the sun, the moon, the stars, and all the various forms of grandeur, beauty, and immensity which fill all space, and yet do not feel that there is a something in our inner life which responds in a mysterious manner to these materialized expressions of the infinite? As we move about the world, enjoy its uses, realize its beauties, and analyze its mysteries, is it possible for us to shut our eyes to the relationship which exists between man as a spiritual being and nature as a Divine Volume, everywhere open for his instruction, and for the purpose of elevating him "through nature up to nature's God?" No; this is not the testimony of our consciousness, nor is it possible under the dual character of our existence. By a process which is as perfect as it is benevolent, the human mind finds itself irresistibly carried toward the infinite, the unknown, and the invisible, whenever we come into the presence of those objects in nature which give rise to the feeling of awe and sublimity. According, also, to the same principles and the relationship between the external world and the internal man, the unpretending violet and the blushing rose suggest to us much that leads to the realization of a purer and better world, wherein those qualities in our nature which give such intense enjoyment to the contemplation of these forms of beauty, shall be more perfectly developed and more thoroughly understood. Possessing as we do a spiritual nature which asserts itself in our every thought, and which the material world by our impressions of its objects confirms to a large extent, we are necessarily brought into certain phases of experience which not only imply the existence of another life, but the chance of our immortality. They do more: they impress us strongly and deeply that the *cogito* which we are compelled to affix before the *ergo sum*, has an infinity of meaning allying us at once to two worlds, and immeasurably transcending the ordinary idea which carries us little farther than "bipeds without feathers." In fact, a little reflection will very soon convince us that thought is existence and existence is thought, because we are compelled to submit to our consciousness as the ultimate test by which our impressions of everything must necessarily be determined.

As an example of this let us mark its operation as illustrated in one of the most strictly scientific minds that the world has ever seen, viz.: that of René Descartes. In his philosophical investigations this great mind commenced by declaring doubt to be a duty, and he ended by declaring consciousness alone to be certainty. In other words, by the most careful analysis and the profoundest meditation he realized "that idealism which declares the ultimate fact of all knowledge to be a consciousness or mental phenomenon; and therefore affirms the highest of all certainties, and indeed the only absolute certainty, to be the existence of mind." And is not this precisely what each one of us must realize before we can flatter ourselves that we understand even the first principles of human existence?

In this respect it matters not that a great many of us have been sickened in a measure by "the jargon of recent days about the 'Absolute,' and all the other hypostalized adjectives, the initial letters of the names of which are generally printed in capital letters, just as you give a grenadier a bear-skin cap to make him look more formidable than he is by nature." For the purposes of truth and real progress in the science of understanding ourselves, there has been far too much of this disposition prevalent. But it does not follow from this that there is no merit in the doctrine which advocates the supremacy of mind, and proposes our consciousness as the ultimate test to which the evidence of all things must be submitted.

> "The immortal mind, superior to his fate,
> Amid the outrage of external things,
> Firm as the solid base of this great world,
> Rests on his own foundation."

In other directions, and most especially with regard to the external aspect of the material world, there may appear many evidences or indications of permanency and reality; but a little careful observation will very soon convince us that the reality is in ourselves, and not in the material world. It is mind makes up the reality of our consciousness, and it is consciousness that makes up the reality of our existence. Outside of this we are nothing, simply because there is nothing of which we can predicate human existence but of these two fundamental facts.

And here we come to that direct point for

which I have designed my preceding argument, viz.: the essential spirituality of man and the irreversible relationship existing between mind as manifested through consciousness and the great "unknown" by which we are surrounded, and by virtue of which the mind at times, reacting as it were against the usurpations of secondary causation, throws itself into the arms of infinitude, endeavoring even in the iron grasp of nature to feel the immediate embrace of God.

Immersed as the majority of us are in animalism and sordid appetites, it may be true that to most of us these experiences are exceedingly "few and far between;" but this by no means denies the fact that there is an aspect to our consciousness which, besides impressing every thoughtful mind with a sense of its profound significance, also enables us to rise to that sphere of contemplative religion wherein the pure Theism of Christianity appears to us in all its fullness and beauty. During the every-day bustle and confusion of a busy life, there are many things which suppress "the still, small voice" within us; but in our silent moments, when the mind regains its thoughtful equilibrium, and the tide of meditation fairly has set in upon us, then in every earnestly reflective mind there comes up from our consciousness a demand which repudiates the old mechanical Deism, and in its stead cries out for a sympathizing and living God. In short, so deeply suggestive is our consciousness, and so obviously clear its indications, that it is impossible for any one to *feel that he is a man* and not in some measure find himself overshadowed by that feeling of awe and reverence which induced Immanuel Kant to exclaim: "Two things fill me with awe: the starry heavens and the sense of moral responsibility in man."

In this connection it matters not how far a certain class of philosophers may endeavor to persuade us that the importance which we attach to consciousness is but an idle phantasy. "Could the haunting problems of Being be silenced, while we only listened to the flow and caught the rythm of phenomena," or could the atmosphere of our thoughts be reduced to the oppressive temperature of a dead materialism, then, and not until then, may we cease to listen to that sentiment which so mysteriously allies us to the visible and invisible worlds; and which the more closely we trace its operation the more clearly it brings us to that grand definition of Socrates: "The man is that which uses the body; now, does anything use the body but the mind? Is not the mind, therefore, the man?" Or, again, to answer with Alcibiades: "The mind alone."

WHEN?

BY SUSAN COOLIDGE.

If I were told that I must die to-morrow,
That the next sun
Which sinks should bear me past all fear and sorrow
For any one,
All the fight fought, all the short journey through,
What should I do?

I do not think that I should shrink or falter,
But just go on
Doing my work, nor change nor seek to alter
Aught that is gone;
But rise and move and love and smile and pray
For one more day.

And, lying down at night for a last sleeping,
Say in that ear
Which hearkens ever: "Lord, within thy keeping
How should I fear?
And when to-morrow brings Thee nearer still,
Do Thou thy will."

I might not sleep for awe, but peaceful, tender
My soul would lie
All the night long; and when the morning splendor
Flushed o'er the sky,
I think that I could smile—could calmly say,
"It is His day."

But if a wondrous hand from the blue yonder
Held out a scroll,
On which my life was writ, and I with wonder
Beheld unroll
To a long century's end its mystic clue,
What should I do?

What could I do, oh! blessed Guide and Master,
Other than this:
Still to go on as now, not slower, faster,
Nor fear to miss
The road, although so very long it be,
While led by Thee?

Step after step, feeling thee close beside me,
Although unseen, [hide Thee,
Through thorns, through flowers, whether the tempest
Or heavens serene,
Assured thy faithfulness can not betray,
Thy love decay.

I may not know, my God, no hand revealeth,
Thy counsels wise;
Along the path a deepening shadow stealeth,
No voice replies
To all my questioning thought, the time to tell,
And it is well.

Let me keep on, abiding and unfearing,
Thy will always,
Through a long century's ripening fruition,
Or a short day's.
Thou can'st not come too soon; and I can wait
If thou come late.

JOY IN THE PRISON.

[Under this heading an Ohio paper makes this statement: Rev. O. H. Newton, chaplain of the Ohio penitentiary, reports that about 360 of the convicts have professed religion since the formation of the prison church, a year and a half ago. Of these about a hundred have been discharged, and have joined churches outside, and are living consistent Christian lives. Nearly five hundred of the inmates attend the prayer meetings, and about four hundred the Sabbath-school in the prison.]

IS it possible! What business have these State prison convicts to become pious? Were they sent to prison to pray, or was it to be punished? Then why not make them feel the iron rod? Why show them favor? Can a criminal repent? Can the majesty of the civil law be satisfied in this joy—ous way? Why, Mr. Newton, you completely nullify the principle taught in the old Jewish record, where it demands an eye for an eye. The next thing we may expect to hear of will be great religious revivals in all our prisons. Then it may be the murderer Stokes will become penitent, seek for pardon, "get religion," and be let loose on the world! *Dreadful! dreadful!* Then what's the use of prisons, we should like to ask? Why not build churches, school-houses, and such like, instead? What *are* we coming to, when preachers pray with prisoners, instead of flogging them? We wonder if it would make any difference, as to crime, if there was less "drink"? Aye? Then why not organize a temperance society in every drinking saloon, and so lessen the causes of crime? It is said, and statistics prove, that seventy-five per cent. of all the men now incarcerated in our State prisons came to their crimes through strong drink! Think of this, you liquor dealers, you liquor distillers; you who put the fatal cup to your neighbor's lips. But we stray from our subject, which is, Religion in the Prison. God bless the good efforts of good men who are moved to work in this much neglected human vineyard! If any class of mortals on earth need the inspiring and encouraging influences of Divine love, it is this class of unfortunates.

There are many poor, ignorant, unbalanced, incautious, impetuous, and—if you will—evil-disposed persons afloat in a city, and there are others, so badly warped, socially, intellectually, and morally, that they are on the verge of insanity. The slightest disturbance dethrones their reason, and over they topple. The asylum is the place for this class, as the prison is the place for the criminal. Such should be placed in restraint, and treated according to his condition and requirements, both for his own good and for the good of society. It is a short but heedless course to send one to death, or to a *worse* condition, by placing him under brutal treatment in prison or asylum.

The Ohio man is on the right track, he uses such agencies as God has placed at his disposal; grace works through means, and real conversions are the results. Think you, good reader, that if you or I were placed in a cold prison cell, that we would become altogether saintly, when no kind or encouraging word were ever spoken to us?

When we consider that the best men are liable to slip, yea do actually slip and yield to temptations sometimes, it ought to teach us charity, and induce us to help the weak, and instead of making them worse, to try to make them better. God bless every effort made in behalf of poor sinners, and especially *criminal* sinners!

FORGIVENESS.—Here are paragraphs from an exchange, which manifest the right spirit:

DECORATION OF GRAVES.

The Soldiers' Rest was then cleared, and the soldiers' orphans marched in, and after the band had played a dirge, the beautiful ceremony of decorating the graves with flowers and evergreens was performed by the orphans, assisted by the members of the Grand Army of the Republic. At every head-board was a small flag, and the graves showed that they had been properly cared for. There was a great abundance of flowers, and not a single grave was forgotten in the decoration.

DECORATION OF REBEL GRAVES.

Perhaps one of the most touching incidents of the day was at the conclusion of the decoration of Union graves, when Governor Washburn, in a few eloquent remarks, called upon the veteran soldiers to follow him and decorate the graves of the Confederate dead, about 150 of whom died in prison here, and are buried in Forest Hill Cemetery. It was an impressive and suggestive scene, and one not soon to be forgotten, to see the Governor and the old veterans strewing with flowers the graves of their late enemies.

[Was not this noble, manly? Heathenish religions inculcate the principle of revenge, but Christianity teaches the doctrine of penitence and pardon. *Forgiveness* is godly; revenge is ungodly.]

Physiognomy, or Signs of Character.

Of the soul, the body form doth take,
For soul is form, and doth the body make.—*Spenser.*

EXPRESSION—ITS ANATOMY AND PHILOSOPHY.

BY SIR CHARLES BELL, K.H.

[CONCLUSION.]

ESSAY X.

USES OF ANATOMY TO THE PAINTER—FAULTS INTO WHICH ARTISTS MAY BE BETRAYED IN STUDYING THE ANTIQUE, OR IN DRAWING FROM THE ACADEMY FIGURE—ANATOMY AS CONDUCTING TO TRUTH OF EXPRESSION AND OF CHARACTER.

IT is interesting, in a very high degree, to mark the traits of emotion, and to compare them with the anatomical structure; and amid the severer studies of anatomy, as connected with health and disease, I have been able, without departing too far from professional pursuits and duties, to pass many pleasant hours in observing and investigating the anatomy of expression. In the prosecution of anatomy, we never know to what results it may lead. The observations I have made on the nervous system might be traced to investigations on the present subject. I saw that the whole frame is affected sympathetically with expression in the countenance; and it was in trying to explain that sympathy that I was led to ascertain that there exists in the body a distinct system of nerves, the office of which is to influence the muscles in respiration, in speech, and in expression.

The study of the animal frame, as it is affected by emotion and passion, is nearly related to philosophy, and is a subject of great difficulty and delicacy. The question is often discussed, of what use is anatomy to the painter? The study of anatomy has been objected to by some persons of pure taste, from the belief that it leads to the representation of the lineaments of death more than of life, or to monstrous exaggerations of the forms. So far this is the case, when an artist, without natural talent or right feeling, will rather exhibit the bones or muscles than the fine forms of health and vigor. But we return to the question, what are the advantages to be gained from this study by the artist? As we may define anatomy to be the examination of that structure by which the mind expresses emotion, and through which the emotions are controlled and modified, it introduces us to the knowledge of the relations and mutual influences which exist between the mind and the body. To the painter, therefore, the study is necessarily one of great importance; it does not teach him to use his pencil, but it teaches him to observe nature, to see forms in their minute varieties, which, but for the principles here elucidated, would pass unnoticed—to catch expressions so evanescent that they must escape him, did he not know their sources. It is this reducing of things to their principles which elevates his art into a connection with philosophy, and which gives it the character of a liberal art.

By anatomy, in its relation to the arts of design, I understand not merely the study of the individual and dissected muscles of the face or body or limbs, but the observation of all the characteristic varieties which distinguish the frame of the body or countenance. A knowledge of the peculiarities of infancy, youth, or age, of sickness or robust health, or of the contrasts between manly and muscular strength and feminine delicacy, or of the appearances which pain or death present, belongs to its province as much as the study of the muscles of the face when affected in emotion. Viewed in this comprehensive light, anatomy forms a science not only of great interest, but one which will be sure to give the artist a true spirit of observation, teach him to distinguish what is essential to just expression, and direct his attention to appearances on which the effect and force, as well as the delicacy of his delineations, will be found to depend.

Among the errors into which a young art-

ist is most likely to be seduced, there are two against which the study of anatomy seems well calculated to guard him. The one is a blind and indiscriminate imitation of the antique; the other, an idea that he will find in the academy figure a sure guide for delineating the natural and true anatomy of the living body. He who makes imitation of the antique the beginning and end of his studies, instead of adopting it as a corrective of his taste, will be apt to fall into a tame and lifeless style; and, in pursuing ideal beauty, will be in danger of renouncing truth of expression and of character. Nay, I suspect that many painters have copied casts of the antique for years without perfectly understanding what they should imitate, or even perceiving the necessity of previously studying the design of the artist, or the peculiarities of his mode of composition. Into this fault, one who is learned in the science and anatomy of painting can never fall. But he who has not compared the natural with the antique head, nor understood the characteristic differences, nor studied the principle on which the ancient artists composed, may be betrayed into the grossest misconceptions, by too implicitly following their models. In painting a hero, for example, on whom the Greek artist would have bestowed a character of strength and grandeur, by bold anatomy and expression, he may be following the ideal form of a deity in which the sculptor had studiously divested his model of all that might seem to pertain to humanity. As I have before remarked, the ancient sculptor, in accordance with the mythology of his country and the spirit of her poetry, studied to show the attributes of divinity in the repose of the figure, without any indication of muscles or veins, and by a face stamped with the mild serenity of a being superior to human passion; thus shadowing out a state of existence, in which the will possessed freedom and activity, without the accompanying exertion of the bodily frame. But those ideal forms are scarcely ever to be transferred to the representation of the human body; and a modern artist who follows indiscriminately such models, misapplies the noblest lessons of his art.

Independently of the ideal form of divinity, there are also some peculiarities in the nature of the ancient sculpture which ought to be well considered by the student in modern painting.

In the infancy of their art, sculptors did not venture to give to their figures either animation or character; they did not even open their eyelids or raise the arm from the side. A stillness and simplicity of composition were thus the characteristics of ancient sculpture; and we are told that Pericles, even in the best period of Grecian art, was anxious that his pupils should preserve this feature

HERE.

of the early ages in all their works as essential to grandeur. The pleasure of being carried back to old times seems to be a part of our nature, or, at least, of the cultivated mind. So Pliny speaks of retaining in everything about a villa its ancient simplicity. It is observed accordingly, that among the excellences which distinguish the Greek artists, the first and most admirable is that gravity of style—that sedate grandeur of expression and prevailing tranquillity of soul which still appear under the most terrible agitation and passion. Upon this chaste model the taste in sculpture was formed in the better ages of Greece and Rome, and its influence has extended to modern times.

Unfortunately this style of composition has been taken as an additional authority for rejecting powerful expression and character

even from the canvas. But we must never forget the distinction between sculpture and painting. The statuary, indeed, as well as the painter, has often to represent what is not consistent with beauty; while both must sometimes preserve an indefiniteness, and soften all the harsher, though strictly natural, lines of expression. If the statues of Michael Angelo and John of Bologna were as familiar to us as the casts of the antique, they would probably modify the prevailing opinions on this subject. Still, there is an essential difference between the principle of composition in painting and in sculpture.

In the works of ancient artists we see a perpetual effort to exalt their productions above the commonness of nature. They studied a grand and general effect, avoiding the representation of minuteness or sharpness of feature, and of convulsions or distortions, however strictly natural; and, indeed, it is scarcely consistent with the character of a statue to represent the transitory effects of violent passion. The sculptor must exercise his genius on the more sublime and permanent feelings, as characterized in the countenance and figure; and much of the difficulty of his art consists in preventing the repose which ought to be preserved in the attitude and expression, from extinguishing all character and degenerating into tameness and indifference.

It is repose, and not absence of expression, that is to be aimed at. The flashes of passion do not assort with the material, while the languor and the gloom of the features in grief are quite consistent with it. The slaves and mutes on the pedestal of a monumental statue may contribute to the effect; they are mere accessories—as the frame to the picture. But this principle does not apply to the painter; to transfer to his art the rules of composition which flow from the study of ancient sculpture would endanger all in which it is most excellent. As his materials do not permit a close imitation of the actual forms of nature, a stronger and more natural character is to be adopted on the canvas than is proper to a statue. It is true that he may often maintain much of the same gravity of style as the statuary, and that in such compositions there may be a certain august majesty; some subjects require this, and others only admit of it, provided the tone and principle of composition be preserved, and the coloring be low and somber. In general, however, this is neither necessary nor perhaps suitable to a picture; and it may be at least laid down, that where there is bold light and vivid coloring, there should also be strong expression and bold characteristic drawing. A painting with high finishing and bright coloring demands minute expression, because the same circumstances which display the natural color, bring out a clear disclosure of the parts and a sharpness of expression in the features.

Thus the painter must study the traits of human expression. The noblest aim of painting is unquestionably to affect the mind, which can only be done by the representation of sentiment and passion—of emotion as indicated by the figure and the countenance. But if it be contended that an imposing stillness and tranquillity must pervade the higher subjects of painting, I venture to affirm that it is a tranquillity which he can never attain who is not capable of representing all the violence and agitation of passion. It is not such repose as the artist who has despised or neglected natural character may be able to represent, but such as he alone can conceive and execute who has studied all the variety of expression, and learned the anatomy of the face and limbs in their most violent action. Nay, tranquillity or repose, in the strict sense of the words, can only be truly represented by one who can, with equal facility, give energy to the features and figure; for in rest there must be character, and that character will best be expressed by him who has studied the effect of the action of the muscles. It ought also to be remembered that repose and agitation must ever greatly depend on contrast and opposition. There are few grand subjects in history or mythology in which the tranquillity and higher beauty of expression in the main figure does not borrow some aid from the contrast of the harsher features, more marked characters, and more passionate gestures of the surrounding groups.

Perhaps I have sufficiently pointed out how dangerous it is for one who aims at excelling as a painter to imitate too closely and indiscriminately the productions of ancient sculp-

ture. But it is natural for the student to believe that the study of the academy figure may serve as a guard against all such danger, and afford him a sure criterion for judging of the anatomy of his figures.

Where is the artist to find the principles of his art when he desires to express mental suffering under all those influences which form the subjects of design in the higher departments of art, and especially in historical painting—is he to grimace at himself in a mirror?—then he falls into caricature; is he to study the expression of the actor?—then he represents what is fantastic and theatrical. For what may be correct representation on the stage is not correct in painting, any more than it would be correct for the tragedian to display on the stage those traits of expression with which the physician is alone supposed to be familiar. Powers of observation, cultivated by good taste, lead us to distinguish what is appropriate. The physician in studying symptoms, the actor in personifying suffering, the painter in representing it, or the statuary in embodying it in marble, are observers of nature; but each sees her differently, and with a feeling influenced by his pursuit.

The study of the academy figure is, undoubtedly, essential; but unless followed with some regard to science it necessarily leads to error. In the first place, it can give no aid in reference to the countenance. Here the lessons of anatomy, associated with the descriptions of the great poets and the study of the works of eminent painters and sculptors, afford the only resource. But even for attaining a correct knowledge of the body and limbs, the academy figure is far from being an infallible guide. The display of muscular action in the human figure is but momentary, and can not be retained and fixed for the imitation of the artist. The effect produced upon the surface of the body and limbs by the action of the muscles—the swelling and receding of the fleshy parts, and that starting out of the sinews or tendons, which accompany exertion or change of posture, can not be observed with sufficient accuracy unless the artist is able to class the muscles engaged in the action; and he requires some other guide to enable him to recollect these varying forms than that which is afforded by a transitory view of them.

When the academy figure first strips himself, there is a symmetry and accordance in all the limbs; but when screwed up into a posture, they indicate constraint and want of balance. It can not be supposed that when a man has the support of ropes to preserve him in a position of exertion, the same action of muscles can be displayed as if the limbs were supported by their own efforts; hence, in all academy drawings, we may perceive something wrong, from the ropes not being represented along with the figure. In natural action there is a consent and symmetry in every part. When a man clenches his fist in passion, the other arm does not lie in elegant relaxation; when the face is stern and vindictive, there is energy in the whole frame; when a man rises from his seat in impassioned gesture, a certain tension and straining pervades every limb and feature. This universal state of the body it is difficult to excite in those who are accustomed to sit to painters; they watch his eye, and where they see him intent, they exert the muscles. The painter, therefore, can not trust to the man throwing himself into a natural posture; he must direct him, and be himself able to catch, as it were, intuitively, what is natural, and reject what is constrained. Besides, those soldiers and mechanics who are employed as academy figures are often awkward and unwieldly; hard labor or the stiff habits of military training have impaired the natural and easy motion of their joints.

Until the artist has gained a perfect knowledge of the muscles, and is able to represent them in action without losing the general balance of the figure, he is apt to produce an appearance like spasm or cramp in the limbs, from one part being in action while the other is in repose. For it is always to be remembered, that whether the body be alive or dead, whether the limbs be in action or relaxed in sleep, a uniform character must pervade the composition. Whether the gently undulating line of relaxed muscle be the prevailing outline, or the parts be large and strong, and the muscles prominent, bold, and turgid, there must be perfect accordance, or there will be no truth of expression.

I think that in the sketches, and even in

the finished paintings, of some artists, I have observed the effect of continuing to draw from the model or from the naked figure, without due attention to the regulated action of the muscles. I have seen paintings where the grouping was excellent and the proportions exact, yet the figures stood in attitudes when they were meant to be in action; they were fixed as statues, and communicated to the spectator no idea of exertion or of motion. This sometimes proceeds, I have no doubt, from a long-continued contemplation of the antique, but more frequently from drawing after the still and spiritless academy figure. The knowledge of anatomy is necessary to correct this; but chiefly a familiar acquaintance with the classification of the muscles and the peculiarities and effect of their action.

The true use of the living figure is this: after the artist has studied the structure of the bones and the groupings of the muscles, he should observe attentively the play of the muscles and tendons when the body is thrown into action and attitudes of violent exertion; he should especially mark their changes during the striking out of the limbs. By such a course of observation he will soon be able to distinguish between posture and action, and to avoid that tameness which results from neglecting the effects of the alternate contraction and relaxation of the muscles. And with this view, after having learned to draw the figure, the painter would do well to make the model go through the exercise of pitching the bar, or throwing, or striking. He will then find that it is chiefly when straining in a fixed posture that there is a general tension and equal prominence of the muscles; and that in the free actions of the limbs a few muscles only swell out, while their opponents are relaxed and flattened. He will not, perhaps, be able at once to catch the character of muscular expression and commit it to paper, but having an accurate knowledge of the muscles, according to their uses and the effect of each action in calling particular sets of them into activity, knowing to what points his observation should be applied, and how his preconceived notions are to be corrected by the actual appearance of the limb, each succeeding exhibition of muscular exertion will advance his progress in the delineation of the figure. Hence it may well be said, that anatomy is the true basis of the arts of design; and it will infallibly lead those to perfection who, favored with genius, can combine truth and simplicity with the higher graces and charms of the art. It bestows on the painter a minuteness and readiness of observation which he can not otherwise attain; and I am persuaded that while it enables him to give vigor to the whole form, it teaches him to represent niceties of expression which would otherwise pass unnoticed.

Even in drawing from a particular model the artist versed in anatomy has a great superiority. When I have seen one unacquainted with the internal structure drawing from the naked figure or from a statue, I have remarked the difficulty which he experienced in showing the course of a swelling muscle or the slight depressions and convexities about a joint; and this difficulty might be traced to his ignorance of the relations and actions of the muscles. The same perplexity he often feels in drawing the knobbed ends of the bones or the insertions of the tendons at the articulations; for these parts being covered over by the integuments and cushions of fat of variable thickness, and sheathed in membranes, are but faintly marked on the surface. The delicate and less definite indications of the anatomy, though easily traced by one acquainted with the structure of the limb, appear to the uninformed only unmeaning variations in the outline; he has no means of judging of their importance, and he is subject to continual mistakes in attempting to imitate them.

Suppose that a young artist, not previously grounded in anatomy, is about to sketch a figure or a limb, his execution will be feeble, and he will commit many errors if he endeavors merely to copy what is placed before him —to transcribe, as it were, a language which he does not understand. He sees an undulating surface, with the bones and processes of the joints faintly marked; he neglects the peculiar swelling of the muscles, to which he should give force, as implying motion; he makes roundings merely; he is incapable of representing the elegant curved outline of beauty with decision and accuracy, and of preserving, at the same time, the characters

of living action. Drawing what he does not understand, he falls into tameness or deviates into caricature.

But with a knowledge of anatomy, if he attempt the same task, his acquaintance with the skeleton will enable him to make his first outline of the figure with truth and ease, and preserve its various proportions; and the study of the muscles will enable him to give force to the muscular parts, and to represent the joints accurately without exaggeration.

It is, however, in composing much more than in copying that this knowledge is truly useful. Without it, all the original efforts of genius must be checked and repressed. Every change of posture is accompanied with muscular action, and in proportion to the painter's ignorance of the cause of those changes, all his designs will be cramped and restrained. Leonardo da Vinci gives formally, as a precept, what is self-evident to an anatomist: "In naked figures, those members must show their muscles most distinctly and boldly upon which the greatest stress is laid, in comparison with which the rest must appear enervate." "Remember, further, to make the muscles most visible on that side of any member which it puts forward to action." Such rules and precepts are rather the result of anatomical study than useful to one ignorant of the subject, in pointing out how effect is to be produced. It is not by following such recommendations that the end is to be accomplished, but by enriching the mind with frequent observation of the changes which are displayed by action, and forming rules for their representation. For example, in vigorous action there is a general tension of the whole frame; but in order to produce a particular motion, a certain class of muscles is brought into stronger action than the rest; and the nature of the motion is expressed by marking the arrangement of the muscles. If a man be merely pointing upward, a graceful simplicity may be all that the painter can attain or should attempt; but if he is bringing down a heavy sword to make a blow, the muscles will start into strong exertion, and the idea of mighty action will be conveyed by representing those swelling muscles of the chest which pull down the arm and give the sweep to the whole body. Thus, to compose with truth and force, it is necessary that the painter should not only know the place and form of the bones and muscles, but that he should also have an accurate conception of the classing of the muscles in action.*

Perhaps I may best convey my idea of the advantage to be derived from this study by contrasting two young artists drawing from a figure; the one trusting to his untutored genius, the other assisted by a knowledge of anatomy. The first is seen copying bit by bit, and measuring from point to point; and the effect, after much labor, is an accurate outline. The other seizes the chief characters of the attitude with facility, because his knowledge of the skeleton has enabled him to balance the trunk upon the limbs and give the contours boldly. The turn of the limbs, the masses of muscle, and the general forms of the joints, are touched with a slight but accurate hand, and the spirit and life of the original are recognized at once. Even in the early stage of his drawing, while his rival is copying parts, he will present the foundation of a correct and spirited sketch; and as he can convey the general idea by a few lines, he also excels in finishing the minute parts.

* "Socrates one day paid a visit to Clito, the statuary, and, in the course of conversation, said to him, 'We all know, Clito, that you execute a variety of figures; some in the attitude of the race, and others in the several exercises of wrestling, of pugilism, and of the pancratium; but with regard to the quality which particularly captivates the soul of the spectator—I mean their correct resemblance to the life—how is this property wrought into your productions?' As Clito hesitated for a reply, Socrates quickly rejoins, 'Is it not by endeavoring to imitate the configuration of the bodies of those who are actually engaged in those exertions of skill and activity that you succeed?' 'Without doubt,' said the artist. 'Well, then,' resumed the philosopher, 'you study, under the various gestures and attitudes of the living body, what parts are drawn up out of their natural situation, or carried in a contrary direction below it. Some which undergo compression, others an unnatural elevation; some which are thrown into a state of extension, others which become relaxed; all this you imitate, and hence you produce that fidelity, that accuracy, which we admire.' The artist acquiesced in the remark. 'And the expression of the passions, again—how great a pleasure does this produce to the spectator!' 'Surely,' replied Clito. 'Thus those who are in the actual conflict of the battle, are they not to be represented as bearing menaces in their eyes, while satisfaction and joy should sit upon the countenances of the victorious?' 'Unquestionably.' 'It is then equally the business of the statuary to transfuse into his productions the workings and emotions of the mind.'"—XENOPHON: *Memorabilia*, Lib. iii. cap. x. p. 6.

But this superiority is still better shown if the model be removed from these two young painters, and they draw the figure from recollection; or if, keeping the model before them in its original posture, they are required to alter the attitude. Let us take, for example, the fighting gladiator. Instead of a young warrior pushing on with great energy, let their task be to represent him receiving the blow of his antagonist, which forces down his shield upon his breast, or brings him with his knee to the ground, as it is beautifully represented on some medals. Can we doubt for a moment which will excel? The one will copy from memory his original drawing, or with great difficulty twist the erect limbs of the statue into a couching posture, while the other will gain by his greater freedom. Retaining the general air, like one who had understood what he copied, he is aware that a new class of muscles comes into action, while those formerly in exertion are relaxed; he knows that the bending of the limbs increases their measurements; he knows how to represent the joints in their new postures; in short, he gives to his figure energy and effect.

It is a mistake to suppose that, because in many of the finest pictures the anatomy is but faintly indicated, the study may not be necessary to a painter. Even that which, in the finished picture, is intended merely to give the idea of muscular exertion, should have its foundation laid in the sketch, by a correct and strong drawing of the full action. It is true that the sketch is too often a mere indication of the painter's design, intended to be worked up to the truth of representation as he transfers it to the canvas—that the outlines of the figures are rather shadowy forms, undefined in their minute parts, than studies of anatomical expression or as guides in the subsequent labor. And, perhaps, it is for this reason that there have been many painters, whose sketches all admire, but whose finished paintings fall short of public expectation. But a sketch which is without vigor, and in which the anatomy has not been defined, is a bad foundation for a good picture; and even a little exaggeration in this respect is not only agreeable, but highly useful. The anatomy should be strongly marked in the original design; and from the dead coloring to the finishing, its harshness and ruggedness should be gradually softened into the modesty of nature.

The character of a sketch is spirit and life; the finished painting must combine smoothness and accuracy. That which was a harsh outline in the sketch, or the strong marking of a swelling muscle, or the crossing of a vein, will be indicated in the finished composition, perhaps only by a tinge of color. The anatomy of the finished picture will always be most successful, and even most delicate, where the painter has a clear conception of the course and swelling of each muscle and vein which enters into the delineation of the action.

While artists neglect the study of anatomy, as connected with character and expression in painting, they never can attain the "vantage ground" of their profession. Perhaps it is also to be feared that while only a few artists are versed in this science, they will be apt to caricature nature; they are learned above their rivals; it is their forte, and they are solicitous to display it. But were the study of anatomy more general, the same spirit and love of originality which tempt them to a style bordering on deformity, would make those very men seek distinction by combining grace and other qualities of fine painting with truth and expression.

It is not enough, however, that the painter should improve himself in the knowledge of anatomy; public attention must also be directed to its importance. For as necessity precedes invention in the origin of the arts, so must general good taste precede or accompany their improvement. The mere conviction in the mind of the painter, that anatomy is essential to the perfection of his art, will seldom be sufficient to insure his application to a very difficult and somewhat repulsive study. The knowledge and opinion of the public must force him to the task, and encourage his labor by the assurance of its merited reward.*

* It may be opportune for the publisher of the JOURNAL to add here that the reader can have the Essays on "Expression," now completed, in one neat volume, with all the illustrations, which will be ready in a few weeks.

SOME FAMILIAR VIEWS OF SOCIETY—No. 1.

"VARIETY is the spice of life," is, indeed, a trite remark, and heard often enough, but perhaps we do not always think that the variety referred to has more relation to things external to man, to the qualities and peculiar features of inanimate objects which surround him. We speak of variety of occupation or avocation, variety of scene, of pleasures, of social life; and generally men accept such variety for the good reason that there is much mental and physiological benefit derivable from it. Man is constituted in such a way that he possesses many sides. Instead of having one positive form of character, he has many qualities or ingredients combined in himself, all of which make up his character; and, according to occasion or circumstances, he exhibits peculiarities of disposition, phases of feeling, or sentiment, or emotion. Perhaps it would not be straining the point to say, man is scarcely twice alike; scarcely can he claim to have had at two different times precisely the same state of mind in all respects. We could hardly point to two periods in our personal experience when the incidental circumstances were precisely similar. Probably no one can. Much of the variety in human life has for the observer elements of pleasure and elements of pain.

As a general thing, however, we are disposed to look upon marked contrasts, like the one in

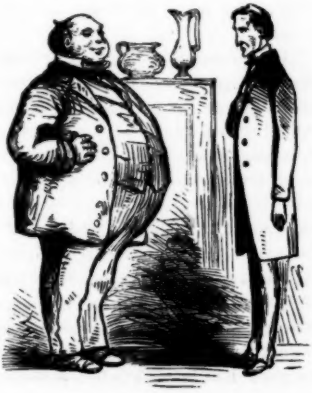


FIG. 1.—STOUT AND THIN.

the engraving for instance, as affording no little food for amusement. Bring together the man of ruddy visage and large, rounded body in juxtaposition with a man of tall, slim frame, with lean, lantern-jawed phiz, and the first impression which we will receive will be that of mirth. The comparison which will be instinctively drawn will prove too much for the equanimity of most people, and the lean, sallow, dyspeptic must bear the brunt of the

FIG. 2.—LEARNED AND IGNORANT.

humor. The fat man is usually a jolly, good fellow, and society is disposed to congratulate him on the score of his rotundity, rather than find occasion to twit him for his apparent appreciation of the good things of the table and an easy mode of life; while the "lean and hungry" visage which usually accompanies Mr. Lankness, has not much consolation. The general opinion is, with regard to such a man, that he does not look upon the world with enough good-hearted feeling to make use of it in a cordial, earnest, benevolent spirit; that he is more disposed to censure, to criticise, and find fault with others, and so, becoming soured by the retroaction of his own acidity, he approximates the mere interrogation point which he so closely resembles.

On first noticing the contrast exhibited in the second engraving, we are led to exclaim: Oh, for the improving influences of well-diffused educational instrumentalities! We regret to think that the masses of the people are lying in such an abject mental condition; that, notwithstanding all that has been done, all the force which wise and good men have put forth for the benefit of nations, have resulted for the advantage of so few. The civilization which we boast of is, to be sure, grand and glorious in many respects, but its grandeur and glory are illustrated by the learning and shining tal-

ents of men whose names are few enough to be hou ehold words. When we descend among the masses of the people, and find millions languishing in ignorance and reveling in vice, chiefly because they have not been instructed in better things, because their consciences have not been illumined by the rays of a higher morality, we feel that our civilization has been shorn of much of its glory and its credit. Between the elderly, well-organized, and well-educated minister and the couple that has waited upon him for the purpose of being united in the bonds of wedlock, there is a marked difference, and yet a difference by no means exaggerated. While benevolence, intellectual discernment, consistency, high religious intuitions mark the character of the one, the others are distinguished chiefly for an absence of these lofty qualities, and a predominance of propensity, passion, and animality. This sketch of the artist points a moral in a way most striking. It is a strong sermon in itself, and needs no commentary besides the thoughts awakened in the mind of any intelligent reader.

Department of Our Social Relations.

Domestic happiness, thou only bliss
Of paradise that has survived the fall!
Thou art the nurse of virtue.

AN IDEAL PORTRAIT.

TOLD BY THE ARTIST.

I HAD been reading Taine "On Intelligence," and was much impressed by a description given of "an English painter whose rapidity of execution was marvelous, and who explained his mode of work in this way: 'When a sitter came, I looked at him attentively for half an hour, sketching, from time to time, on the canvas. I wanted no more—I put away my canvas, and took another sitter. When I wished to resume my first portrait, *I took the man and sat him in the chair*, where I saw him as distinctly as if he had been before me in his own proper person—I may almost say more vividly.

"'I looked from time to time at the imaginary figure, then worked with my pencil, then referred to the countenance, and so on, just as I should have done had the sitter been there—*when I looked at the chair* I saw the man.

"'Gradually I began to lose the distinction between the imaginary figure and the real person; and sometimes disputed with sitters that they had been with me the day before. At last I was sure it; and then—all is confusion. I lost my senses, and was thirty years in an asylum.'

"When he left the asylum he had still the power of painting a portrait from his internal image of the model, but was persuaded not to work, for fear of a return of the madness."

I mentioned the subject to my friend Cornelia, whose wonderful success in painting posthumous portraits is sufficient evidence that she thoroughly understands the reduction of images. The faces that look out from her canvas are human faces, about whom there is no suspicion of oil or pigment, and they possess such an amount of magnetic influence that you are haunted by their memory long after you have turned your back upon them.

"I always paint in that way," said Cornelia, referring to the English artist; and I, who knew how little material she required to make a portrait, was quite ready to believe the assertion.

"Did I never tell you of my ideal portrait?"

"No;" and I put myself in a listening attitude.

"It was for a Mr. Clinton, who had lost his first wife and was married to his second, a relative of Kate's, when he came to me.

"'Cornelia,' said he, 'do you suppose you could paint Kate's picture? There is nothing in the house to give you any idea of her, but I must have a portrait of her if such a thing is possible. Would a description do? O you must paint her!' and the anxiety of the man was enough to determine the undertaking.

"He began telling me how she looked, the color of her eyes and hair; and out of these brief and unsatisfactory portions I mentally created an ideal.

"'I'll do it!' I exclaimed.

"'O Cornelia! can you?'

"'Yes; I'm determined! I'll take all my traps up to your house, and I won't leave there until the picture is finished!' He believed I could do it, and his faith in me was a sort of inspiration. Well, I was installed in the north room, where was the light I wanted, and began sketching from descriptions given of Kate by both Mr. and Mrs. Clinton, who were not permitted to look upon the canvas.

"You don't know how much assistance I derive, in the painting of posthumous portraits, from one who has good descriptive powers.

"People are so different in that respect; some can't tell you anything at all, even of their best friends. What I want are the general characteristics, so that I can get myself in sympathy with the subject. I had given myself a week in which to finish Kate's portrait, and was as confident of my success as if I had every advantage toward securing the most favorable result.

"I was busy at my work in the parlor, when the door-bell rang and a young gentleman entered my temporary studio, previous to being invited into Mrs. Clinton's sitting-room. As soon as I looked at him, I felt there was an expression on his face that I wanted to put in Kate's. It was the only thing that had bothered me. I did not know the young man or what relation he bore to the family, but from the moment of seeing him I worked more rapidly than I had done hitherto. He had supplied the 'missing link' in the psychological chain.

"That evening I inquired who was the visitor who had called during the day. 'That was Mr. Weller,' said Mrs. Clinton; 'Kate's brother!' The mystery was explained, and you may imagine how delighted I was. I said nothing, however, but at the end of the seven days, I called Mr. and Mrs. Clinton to inspect my work. 'My God! it is Kate!' said the former, tear after tear chasing down his cheek, and giving more eloquent testimony to the truthfulness of the likeness. Mrs. Clinton was speechless with astonishment, and both seemed to feel as if the grave had given up its dead."

It is a wonderful thing, this creative genius; and as I looked at my little friend, so liberally endowed, I marveled not at the attenuated frame, the spiritual face with the preponderant brow, and the soulful eloquence of the eye, all of which bespoke an intimate acquaintance with things that are unseen by ordinary observers.

I remembered the profile plaster cast she showed me, in the beginning of our acquaintance, as the only guide she had to the painting of the first portrait she attempted. Her very boldness insures success; and should any of my beloved ones be snatched from me, leaving no shadow, visible to the eyes, of what they once were, I should want no other person to call them back from the silent land and give them place among us, than she who puts her soul in her work, and verily restoreth the dead to life.

THE PRETTY MAN, AND THE DOLL-FACED WOMAN.

BY ANNA CLEAVES.

THERE is nothing more contemptible, in my estimation, than an effeminate-voiced, baby-featured, meek-eyed pretty man. Such a man always reminds me of soft bee's-wax, ready to be molded into any form.

I pity the woman that marries a man of this stamp, especially if she be plain-looking; for he is so much in love with himself that, depend upon it, he has none of the precious article to bestow upon others. Besides, he is universally selfish; everything must be appropriated to his majesty's service; he will take good care that his wants are supplied, and consider it a generous act to leave you to do the same for yourself.

The word conceited does not begin to express the vanity he manages to cram into his empty head; he imagines that everybody admires him, and that all the young ladies in his circle of acquaintance are dead in love

with him. The dear souls! how can they withstand his charms!

When he speaks, everybody is expected to listen and pay deference to him; for he fancies that he is saying smarter things than anybody else ever dreamed of.

The pretty man is always dressed in the height of fashion, no matter if it be at the expense of his wife's slender, personal income. He is sure of non-exposure from this quarter, and will abuse her confidence and endurance without a twinge of conscience or the least remorse.

If there are any children in his household, they must stand aside when this lord of the manor is around. The pretty man will not be bothered with anybody. Our Heavenly Father must take care of the children; the pretty man has enough to do to look out for himself.

As to his much-abused wife, she is a nobody; and the worst of it is, she never was anybody in his estimation—he married her because he felt flattered by her simple love and blind adoration; now that he has become indifferent to her preference, he looks upon her as a little simpleton, fit only to be his valet or minister to his wants and wishes unmindful of her own.

The soft speech and saint-like visage of the pretty man has broken many a trusting heart.

But why is it that women are so blind? I sometimes think they deserve the punishment they get.

Heaven defend me from marrying a pretty, effeminate man! I would as soon think of throwing myself into a lion's den! One look at such a man is enough for me. I always feel like passing my hand rapidly over his face, from the forehead to the chin, then back again, as we children used to do at school, saying, "This is the way to spread the bread, and this is the way to cut it." This *cutting it* made one's nose tingle, and for the moment displaced every feature in the face. And this is just what the pretty man needs; something to rub out the too even contour of his features; to knock the vanity and conceit out of him; and, if possible, to replace them with a little good, solid common sense.

Now, the good, noble, honest-looking man commands the respect, if not the admiration, of every sensible woman. And no matter how plain-looking he may be, if there is character and true manliness depicted in his countenance, depend upon it, he is one of God's noblemen, and will prove himself as such.

Look at the faces of Webster, Calhoun, and Clay, and then review their lives, which were spent, each in his own way, to be sure, in doing good to others, and in a steady, unflinching struggle upward for the attainment of that knowledge which beautifies the plainest countenance.

There is nothing more to be envied than a cultivated mind. It gives to the possessor ease and grace and politeness, and clothes him with a charm that draws all unto him. And when to these are added goodness, truthfulness, charity, and a self-sacrificing spirit, we have a man who is a blessing to his race, beside whom the "pretty man" sinks into utter insignificance.

And now we come to the doll-faced, inefficient woman, who may be placed in the same category with the pretty man.

Like him, her beauty is all in the exterior; her mind is as shallow as her morals, for she is vain, cold, silly, and selfish; and the better one knows her the less respect one has for her.

If a man of intellect happens unfortunately to be entrapped into matrimony with such a woman, he will find that he has a millstone hung about his neck that will weigh him down into the very dust.

The vain, inefficient woman is no helpmate to a man, but a burden. She looks to him and expects from him everything, without making the least effort to help him gain anything. One glance into her elegant but comfortless home is enough to drive any man into the streets, away from its depressing influence. She has no sympathy with his labors, his studies, or his trials; the doll-faced, silly woman can not comprehend these things; she expects him to be her footstool, to shoulder all the burdens and cares of life alone; if he breaks down under the pressing weight, down she goes, too, and adds to his further embarrassment instead of sustaining him with her love and encouragement, as a self-reliant, brave-hearted woman would do.

But the doll-faced woman is but an automaton, moved only by the will of another; in her breast never dwelt the true, unselfish love of a true wife, nor the sweet sacrificing love of a noble mother.

The truly beautiful woman is one who is made beautiful by the impress of an intelligent mind illuminating her every feature.

The world honors that woman whose soul is filled with greatness and goodness; that one who, side by side with the true man, is capable of grasping the realities of life; of braving its misfortunes, its cares, and its sorrows; never shrinking from the path of duty, though it lead into the hospital by the side of the brave, self-sacrificing Florence Nightingale.

Oh, I love such women as these! and the world loves and respects them; but the vain, silly, selfish things, even God condemns.

RECOGNITION.

BY MARY HAINES GILBERT.

Eyes ever wont to greet me with a gladsome smile,
I know you not; nor joyous lips that knew no guile;
Nor brow that darkened days could never overcast,
O'er the dim semblance spread the pall—I've looked my last.

Yet stay! They tell me this is he—a blackened corse!
I know it not—but, ah! I recognize the gloss,
The sunny light of his own soft, brown, wavy hair.
O, whirlwind, Death! to rob of all save these locks fair.

"Papa!" My child, ah, no! thy father never more
Will greet thy baby eyes uplifted at the door.
Now laugh, outstretch thy little, longing arms in vain.
Caresses?—his, henceforth, are gusts and sleet and rain.

Have I affrighted thee, my boy, my husband's child?
Ah, me! 'tis grief hath made my accents strangely wild;
But for thy sake, my boy, I'll learn to smile—aye, laugh!
Yes, this deep cup of misery I'll learn silent to quaff.

'Tis not for thee to drink the bitter cup, my boy;
Thy early days should golden be, without alloy.
Yes, the dark hours shall hold me smiling as of yore,
Smiling and brave for thee—I'll fright his babe no more.

Take it away! It is the dust that held his soul.
It is not he! "The grave of all is not the goal,"
Thank Heav'n! "Ashes to ashes, earth to earth." The breath
Is thine, the life—the spark Divine!—is God's, O Death!

PAUL ELSON, THE HEROIC SAILOR.

AN exchange furnishes a vivid account of a man whose noble heroism and almost superhuman efforts in behalf of a shipwrecked crew, in the Indian Ocean, deserve commemoration in most enduring marble. Paul Elson was the name of this heroic soul while on earth, for his body succumbed to the fatigue and exposure incident to the earnest discharge of duties undertaken in behalf of fellow-sufferers. The account, briefly given, is as follows:

On the 29th of last July the ship Rothesay, which but three days before had cast off from the Calcutta tug, was caught in a cyclone. On the 30th she lay a wreck at the mercy of the waves. Then the pilot, Paul Elson, gathered together a few volunteers and constructed and rigged a raft. Thirteen of the crew got on her; the rest, as is usual on such occasions—and therefore the heroism of this one man stands out all the grander—were frantic with terror, praying, cursing, yelling, drinking. Elson was the last to leave the ship, the captain having been disabled by an accident. Leaping over, he cut the hawser that held the raft to the Rothesay, and took upon himself the command. We shall see how he fulfilled its responsibilities. All that day and all that night, we are told, the seas broke heavily over the raft; "we were up to our necks in water," says the man who recited the story, "for she floated low." All the night, nevertheless, Elson, who appears to have been a powerful swimmer, swam round and round the raft, lashing her together and making her stronger, as best he could. Now and again would the furious waves wash over the raft, and ever and anon a victim went away into space and eternity along with them. Nevertheless, this brave Elson, whose heart and strength both appear to have been giantlike, would be off the raft with a dash, and would strike out, and at times bring a poor creature back. Away went a man, and Paul Elson would follow. But at last it became necessary to construct a smaller raft, so that the weight might be divided to relieve the other. This Paul Elson built almost single-handed. The larger raft floated away; the pilot and three other men took to the smaller. And here we may simply record the fact that this separated Elson from his servant,

a native boy, whom we are assured Elson tended with the care of a mother, and never once lost sight of in the midst of all his fearful toil and anxiety. "He kept near him; he tended him as a mother would her child; he gave him our last supply of drinkable water."

The Rothesay had sunk on the 29th of July, and this was the 2d of August. To follow out the account given in the London *Daily Telegraph*: "The raft was drifting under a raging tropical sun; for three days there had been no food, no water; worse than this, the frail support itself began to break up, and swimming about in a heavy surf, Paul Elson became much exhausted. The end, of course, could not now be far off. First one of the men was washed away, and then another, until Elson himself and the Scotchman who tells the story were the sole survivors. 'Pilot,' said I, —so the narative runs—'we must fight it through!' 'O Fraser!' answered he, 'I can't hold out any longer.' * * * 'Then a heavy sea broke upon us, and knocked him off. I found it impossible to hang on, and was forced to let him go.' And so the story ends. The body of Pilot Elson, worn out by his incessant labors, floats away into the great deep, there to lie till the sea shall give up its dead."

MR. FROUDE IN AMERICA.

IN "OUR ANNUAL" (1866) we published the accompanying likeness, with a sketch of the eminent writer and lecturer, who is now on a visit to America. He has changed since then, and is older, if not wiser. We can only claim that our portrait, which was cut from an excellent photograph, may be supposed to be more like him as he then appeared, than as he appears to-day.

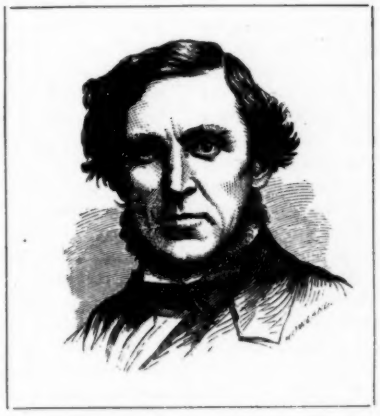
James Anthony Froude was born in Totness, Devonshire, in 1818. He pursued a course of collegiate training in Oriel College, Oxford, and then studied for the church; was ordained a deacon in 1845, but soon after abandoned theology for literature. His "History of England" is distinguished for the boldness and originality of the author's views on important events, especially for his attempted vindication of Henry VIII. Besides this history, he has written on various subjects, mainly for the leading periodicals of England. He occupies the foremost position among British historical writers of the present day. His physiognomy belongs to the class of which the philosophical Herbert Spencer may be taken as a good representative. There is, however, more of the practical and matter-of-fact in Froude's mental make-up. The direct look and the close lips indicate definite purpose. His whole physiognomy warrants the inference that he is somewhat set in opinion. He would be known, as a writer, for boldness and clearness of statement, and for originality of conception. Caution and Secretiveness are not sufficiently potential to render him over-guarded, though correct in the choice of expression, while Self-Esteem, Combativeness, and Destructiveness are strong enough to render him earnest and outspoken and disinclined to evade. This is an almost purely mental temperament, and the organization is every way adapted to the chosen pursuit, literature.

A public dinner was recently given to Mr. Froude in New York, by his American publishers, at which he was welcomed by a large and pleasant gathering of leading Americans engaged in literary pursuits, and others of eminence. George W. Curtis presided, and among the guests were Ralph Waldo Emerson, Rev. H. W. Beecher, W. C. Bryant, Dr. T. D. Woolsey, Dr. E. H. Chapin, Dr. H. C. Potter, Rector of Grace Church; Dr. Noah Hunt Schenck, Rector of St. Ann's Church, Brooklyn; Dr. H. W. Bellows, Hon. A. D. White, President of Cornell University; Col. T. W. Higginson, Dr. Abel Stevens, Bret Harte, Parke Godwin, Dr. J. G. Holland, D. A. Goddard, of the Boston *Advertiser*; Geo. W. Childs, E. L. Godkin, J. W. Harper, Jr., Judge C. P. Daly, Prof. Arnold Guyot, Dr. P. Schaff, W. H. Appleton, George Jones, Dr. Edward Bright, Col. R. M. Hoe, Augustine Smith, Dr. W. M. Taylor, William A. Booth, Judge Fancher, Robert Bonner, Dr. S. I. Prime, Hon. H. O. Houghton, R. H. Stoddard, President Gilman of the California University; J. M. Bundy, E. C. Stedman, Dr. W. H. Ward, John Hay, L. C. Davis, of the Philadelphia *Enquirer*; Dr. H. M. Field, of the *Evangelist*; Mr. Goodrich, of the Boston *Post*; Edward King, of the Boston *Journal*; C. D. Warner, author of "My Summer in a Garden;" J. R. Thompson, of the *Evening Post*.

After a brief address of welcome by the Chairman, Mr. Froude rose to respond amid loud cheers, which were repeated again and again. He spoke with great ease and fluency, in a manner entirely devoid of any oratorical effort. The following is a part of his address,

which, on account of its reference to Ireland and Irish affairs, can not but prove interesting to the reader:

When, a few years since, an English squadron was engaged with the forts on the Peyho, one of our ships ran on a bank, and was suffering severely from the Chinese fire. An American frigate, which was in the river, came to our help—the commander saying briefly, that "blood was thicker than water." That blood was thicker than water, sent Dr. Kane into the Arctic Circle in search of Sir John Franklin. That blood was thicker than water, induced the chivalrous editor of the New York



JAMES ANTHONY FROUDE.

Herald to dispatch Mr. Stanley into the heart of Africa to seek and find David Livingstone. The same feeling has created in the English nation a more genuine delight in the success of a private enterprise of an American citizen, than if Livingstone had been discovered and brought home by the agents of our own societies.

My literary career has been a checquered one. I have been connected from the beginning with subjects on which passion is still boiling. Those who handle hot coals are apt to burn their fingers, and I have now and then burnt mine. Literature, however, has also brought me many pleasures. Of all these pleasures, not one has given me so much gratification as the recognition which my writings have been so fortunate as to receive in this country. Long ago your Historical Societies at Philadelphia and Boston were among the first to hold out a hand to me. Your reception of me here this evening, gentlemen, would have been the most agreeable experience in my literary life, were it not that I feel oppressed by your goodness to me. When I see myself here, surrounded by the most brilliant representatives of American literature—by men whose names have been household words wherever the English language is spoken—I am sure that you are forming expectations of me which I shall inevitably disappoint. We are all of us so constituted by nature that we can swallow a large measure of flattery, but the digestive power even here has its limits. I know too well the measure of my own capabilities. You make me feel like Falstaff before the battle of Shrewsbury—"Would 'twere evening, Hal, and all were well." Would it were a fortnight hence, when you have heard what I have to say to you, and your good opinion of me had remained unchanged.

Some eighteen months ago, at a London

breakfast table, it was mentioned that one of the most prominent Fenian leaders was making a tour in the United States, dilating upon English tyranny and the wrongs of Ireland. No doubt the text is a pregnant one, and it probably did not suffer in the commentary. Irish patriotism has many a charge to bring against England, which can be but too well substantiated. England can not complain if Irishmen have a long memory. There are, however, features in the long tragical story which, if they do not palliate, at least explain and make intelligible much that we could wish undone—features which, naturally enough, the Irish overlook, yet which should be borne in mind if an impartial judgment is to be formed on the controversy. I was aware how great an influence America possesses in Ireland. The judgment of America has more weight in Ireland than twenty batteries of English cannon, and that judgment ought not to be pronounced after hearing only the counsel for the plaintiff. I said hastily, I think I will go over and give some lectures on the other side. I spoke without serious intention; but the idea having once presented itself to me gathered form and fixity. I am not an Irishman. I do not own an acre of land in Ireland, but circumstances during the last thirty years have thrown me much among the Irish people. They are a people who either attract strongly or repel strongly. I myself had always felt myself specially drawn toward them. When at college, I used to spend my vacations wandering in the Irish mountains. I have lived in peasant's cabins for months together. I was once laid up with severe illness in the wilds of Mayo, and the poor creatures treated me with a tenderness which I shall never forget. Their history attracted me. Their condition personally interested me. I knew Ireland before the famine. I knew it in the famine. I was in Ireland afterward, in 1848, in the Smith O'Brien insurrection. Since that time I have been an Irish tenant. Indeed, I may say I am an evicted tenant. I have been turned out of my holding, and can sympathize with the special wrong of the country, as I was very unwilling to go. But my landlord simply wanted to live in his own house and attend to his duties. If all evictions were as innocent as mine, there would be little to complain of, and when I go back I hope to find some other place in the same county which will suit me as well.

When I was writing my History of England, I was led to look closely into the conduct of the English Government toward Ireland in earlier times. When that book was off my hands, I began to examine into the action of the celebrated Penal laws of the last century. I had read what very few persons have read—the secret correspondence between the English and Irish Administrations during all that period. I felt, in short, that I had something of importance to say, and I wished to say it. I would not act in such a matter without advice. I consulted my friends, and their answers were generally unfavorable. One said I should be mobbed by the Irish. Another, that he supposed I should tell the truth; there was nothing so unpalatable as truth; I had better let it alone. Others urged more gravely that it was unbecoming and improper to discuss questions of our own domestic politics in a foreign country. There were some, however—and those who knew Ireland best—who said to me, "Go!" and my own instinct said "Go!" As to the Irish, I have always been on good terms with them, and I believe I always shall be. I hope to spend a large part of the rest of my life among them, and if they have anything to say to me, they will have an opportunity at home. As to truth, it may be unpalatable, but there is a prejudice that a little of it is not unwholesome. For the more grave objection, if I were in Parliament, if I belonged to any political party, even if I was an Irish landlord, I admit that it would have weight. It might be supposed that I was indirectly pursuing some party object. But as far as I have any public character it is simply as a writer of books. I address myself equally to all English-speaking people wherever they are, and there can be no possible reason why I may not address them as well with my tongue as my pen. Once for all, however, I insist that England and America do not stand to one another as foreign nations—foreign in the sense that France or Russia is foreign to us both. Politically separate we may be, but we can not shake off our relationship. Sprung from a common stock, with a common history, common language, common laws; charged as we both are by Providence with the carrying out of that grand principle of ordered liberty, on which, as we believe, the amelioration of mankind depends, we may be rivals, but rivals only as to which of us shall represent these principles most wisely and most effectively. We may quarrel, and when we quarrel it will be with the peculiar bitterness which distinguishes family disputes. But the very acrimony is itself an evidence of the closeness of the tie which binds us. For the sting rises from the supposed absence of

the special good-will which each of us conceives we have a right to look for from the other. Be our political position to each other what it may—and for myself I hope and believe no angry word need evermore be exchanged between us—it is inevitable that we must retain an ardent interest in each other's future, and must remain connected by links of feeling such as can not exist between either of us and any other powers.

In the last century, and in the century before, when the Irish Catholics remained fixed at home, there was a no less important Protestant emigration to this country. Every season for more than a hundred years they came over in shiploads, the very pith and marrow of the colonists who had been planted in Ireland by the Puritans—the sons and grandsons of the Cromwellian settlers, the Ulster Presbyterians, the Calvinist immigrants, English, Dutch, and French, who went thither after the last conquest, and were driven out by the intolerance of the Episcopal laws. They came here, like the Pilgrim Fathers, in search of liberty which was denied them at home. In the war of Independence they made England rue the madness which had banished them. And in that same war of Independence their friends in Ireland, the Protestants who remained there, were the stanchest friends which America possessed.

Gentlemen, it is now three hundred and sixty years since an Englishman was sent over from London to examine and report upon the causes of Irish discontent. It was a time when, if ever, the Irish had the management of their own affairs. The result was universal misery, and the conclusion was that the cause was hopeless. "Our fathers," this writer said, "could find no remedy." They had more wit and wisdom than we. How, then, can we find it? Wise men say that "the herb that will heal the wound did never grow." Nearly four hundred years have passed away; we are still seeking for that herb and can not find it. I know not if it grows anywhere, but I yet believe that though no growth of the old hemisphere, it may be discovered in the new. It is that plant which I have come in search of. I believe it to be American opinion!

Ourselves at our wit's end, if America will counsel England what to do that she has left undone, what wrong she can yet redress that Ireland may justly complain of, England, I am certain, will listen respectfully, cordially, gratefully.

If, on the other hand, a time is ever to come when political agitation is to end in Ireland—when Celt and Saxon, Protestant and Catholic, are to live side by side in peace and quietness, it will be when America tells the Irish that they have no longer a grievance which legislation can redress, and that they must depend for their future prosperity on their own industry.

In appearance Mr. Froude is tall and impressive; his voice is very pleasing, being gentle and musically toned. As there seems to be much diversity of opinion with reference to the pronunciation of his name, it may be in point for us to say that the gentleman himself pronounces it as if spelled F-r-o-o-d.

CHANGES IN CHARACTER.

NEW varieties of the human race may be produced by taking advantage of the principles of selection and hereditary transmission, which shall be as much superior to the men and women of past ages as the finest varieties of apples, for instance, that we now enjoy are superior in size and flavor to the original species from which they have been developed, or as any variety of plant and animal, improved by selection and culture under man's superintendence, is superior to its native, ancestral stock. Second, to illustrate the changes which may take place in individual character. Those who affirm that character can not be radically changed, are like those who affirm that species of plants and animals can not be changed. That the latter affirmation is untrue is proved by the facts furnished by every farm-yard, every orchard, every garden. That the first affirmation is untrue should be proved by the facts furnished by every family. Is there not abundant evidence that any person may, by reason of some strong purpose, become at the expiration of years very different from what he would otherwise have been, and different from any one of his ancestors? The speaker was assured of this, and, further, that a variation leading to such a result may be started at any point in one's career. The motives and purposes which are born in the hearts and minds of men from day to day, are like the offspring of a species of plant or animal; and as the skillful culturist or breeder in seeking for improved varieties carefully selects and favors the best one of all that appear, so any person may, to a considerable extent, real-

ize his ideal in his own character by continually favoring those motives and purposes which accord with that ideal. This is true of general character, and also of specific things in character. Any noble quality may in this way be produced; one has but to constantly vary in the right direction, and at the end of a life-time marvelous results will appear. Here is a young man, we will say, who is hard-hearted, as his ancestors have been before him. Must he continue so, and never know the ineffable happiness of a soft, broken, receptive heart? No; let him give place to those impulses, those experiences, which favor the last-named condition—let him vary constantly in that direction, and each succeeding day his character in that respect will be changed, each succeeding day will find him a modified being—a new variety; and at the expiration of a year, perhaps, the accumulated changes in character resulting from daily variations in the direction of soft-heartedness may be so great as to surprise the subject and all his friends and acquaintances.

This process of variation—this realizing of our ideals—may undoubtedly take place, to some extent, in persons who have known nothing of God's grace. The effect of that is to give us higher ideals, better purposes, and increased power to realize them; so that the person who has really accepted Christ as his counselor and friend has greatly improved chances of turning out a character which shall be altogether superior to that of his ancestors.

A third point: when plants and animals are changing from an inferior to a superior condition, in consequence of improved culture and better means of subsistence, the moment the care and skill of man is withdrawn, and their means of subsistence deteriorates, the principle of reversion comes in, and tends to carry the improved varieties back to the original forms. Our improved flowers, food-plants, and domestic animals might all in time lose their improvements if subjected to the conditions in which they existed when man brought his skill and wisdom to bear upon them. So if we would have greatly improved characters in the end, we must maintain the conditions which have caused the improvements already made. If we neglect these there will be a tendency to revert. If spirituality be our object, then we must continue to seek the things and do the things which favor it—the processes of mind and heart-renewal must go steadily forward forever. The tendency to reversion in the case of improved plants and animals is weak in proportion to the amount of variation which has taken place and the length of time in which the variation has occurred; and so it is in our spiritual experience, the greater the improvement made, and the longer the time in which we have set our faces in the direction of perfect unity with Christ and the pure spirits above, the less danger there is that any principle of reversion—any "falling from grace"—will undo the work already accomplished; and, besides, it is possible, if we are to credit the Scriptures, for every one to reach a point where reversion becomes impossible.—*Oneida Circular.*

[This is encouraging for the Reformers, and we trust sensible men and women will make practical trial of the principle.]

ORGANS OF THE BRAIN—HOW DISCOVERED—No. II.

SELF-ESTEEM.

DR. GALL discovered this organ by noticing the head of a beggar, who had inherited a fortune from his father, and thought it beneath him to apply himself to business, either for the preservation of his fortune or to acquire a new one. Dr. Gall molded his head, and on examining it closely he found the organ of Cautiousness small, with a small head in general, but with the crown very much elevated. The beggar, on being questioned relative to the matter, said that he was always so proud as not to be able to condescend to apply to business, and he felt that his pride was the only thing that stood in his way of acquiring prosperity when he had used up his fortune. This, of course, was an excessive development, and it being such led to its discovery. A proper development of Self-Esteem harmonizes with other organs, imparts a degree of satisfaction, and leaves the mind open to the enjoyment of the bounties of Providence and the amenities of life; it inspires us with that degree of confidence which enables us to apply our powers to the best advantage in every situation in which we are placed. When the organ is small the unfortunate individual suffers from a sense of un-

worthiness, stands aside, and gives place to others who have assurance, and is content to be subordinate.

APPROBATIVENESS.

Dr. Gall met with a woman in the lunatic asylum, who fancied herself to be the Queen of France. He expected to find the organs of Self-Esteem largely developed, but instead there was a hollow, and a rather large protuberance on each side. This at first caused him much embarrassment, but he soon perceived that the woman's insanity differed very much in its action from that of men who were insane on the subject of pride; the latter affected a masculine majesty, and were calm, lofty, and arrogant. This woman, on the contrary, manifested a restless frivolity, eagerness to announce high birth and boundless riches, and was lavish in her promise of favors and honors. She solicited attention, and strove by every means to obtain admiration. From that time he perceived the difference between Self-Esteem and Love of Approbation; from that day to this millions of observations have verified the truth of his conclusions.

COMBATIVENESS.

This organ was discovered by Dr. Gall by collecting together a number of the ignorant, and those following different occupations. After acquiring their confidence, by giving them money and wine, he drew them into conversation in regard to each others' qualities; he studied their characteristics and compared their developments. Such as were remarkable for quarrelsomeness, for bravo, had a wideness of the head backward from the top of the ear, while those who were noted for cowardice were narrow in that region. In Vienna animal fights were frequently indulged in. One man was so intrepid that he often presented himself alone in the arena, to contend with the bull. In his head Dr. Gall found Combativeness to be very large; and in a young lady, who had repeatedly dressed herself in men's clothes, and maintained battles with the other sex, it was also equally conspicuous.

ADHESIVENESS OR FRIENDSHIP.

Dr. Gall was requested to mould the hed of a lady, who was a model of friendship. He did so, and found on the cast two prominences symmetrically proportioned, one on each side, giving wideness to the back of the head, some two inches and a half upward and backward of the ear. The lady had suffered great mutations of fortune; she had been rich and then poor, and rich and poor again, but had through all these changes remained firmly attached to her friends. As this was a strongly marked development, and that trait in her character was very uncommon in its strength, the idea was naturally suggested that this part of the brain might be the organ of the disposition to attachment. Many subsequent observations confirmed the conjecture. This faculty is the basis of fraternal love, and may exist between men, between women, or between men and women. See Ruth i. 16, 17, 18; II. Sam. i. 26. It attracts men, and also animals, to live in communities, flocks or herds. While Amativeness gives sexual love, Philoprogenitiveness gives the love of parents for offspring, and the love of pets; Conjugality gives the mating tendency; and Veneration gives filial love.

PARENTAL LOVE, OR PHILOPROGENITIVENESS.

Dr. Gall observed that in females the upper part of the occipital bone, (the middle of the back-head, but on a plane horizontal with the top of the ear) receded more than in males, that the head was longer from that point back, and naturally inferred that the brain beneath this region was probably the seat of some stronger feeling in woman than in man. For five years he kept the subject continually in his mind, adopting various opinions, all of which he saw reason to discard; at length he noticed that the skulls of monkeys, in this particular part, bore a striking resemblance to those of women, and he inferred that the brain lying under this prominence was the probable quality of the organ which woman and these animals equally possessed in a high degree. During the delivery of a lecture, it occurred to him that one of the most remarkable characteristics of these animals is an extreme love for their young—that this might be the long-sought organ. He hastily begged his class to retire, hurried to his cabinet, and commenced to compare all the skulls he possessed, and found the same differences to exist between females and male skulls in general. All subsequent observations confirmed the correctness of his discovery, viz., that this part of the brain is the organ of love of young.

BENEVOLENCE.

A friend of Dr. Gall, knowing that he had sought external manifestations of mental qualities, requested him to mold the head of a servant, who was remarkable for his amiable disposition and goodness of heart. It is impossible, said he, to find a greater degree of goodness than that young man possesses. Dr. Gall complied with the request, and perceived a prominence of the frontal bone, at the top of the front part of the head. He remembered a

school-mate, who had a like amiable temperament. He was also requested by a lady to mold the head of her son, who possessed an amiable disposition. He found all these heads were prominent in this region, and that the disposition to do good was innate, and here was its organ.

ACQUISITIVENESS.

This organ is located upward and a little forward of the ear, and when large gives a fullness and width to the head in that region. Dr. Gall discovered it by comparing the heads of persons whom he invited to his house, and who made him their confidant; he found some of them accused each other of petty larceny, and took great pleasure in pointing out those who excelled in such practices, and he found others who would rather starve than partake of what their companions had stolen; the first he found to be largely developed, and others comparatively small.

CONSTRUCTIVENESS.

This organ is located on the temple, and when large gives breadth and fullness to that region. Dr. Gall discovered that persons distinguished for mechanical tastes were very wide in this region. Some gentlemen of Vienna presented to him a person concerning whose talents they solicited his opinion. He told them he ought to have a great tendency toward mechanics. They then told Dr. Gall he had been examining the head of the famous painter, Unterbergen, and expressed dissatisfaction with the opinion, but the man himself was greatly struck with his observations, and declared that he had always a passion for mechanics and he only painted for a livelihood. He took the party to his house, where he showed them the machines which he had invented, and others which he had improved. Constructiveness is now well understood to be an element in the art of painting, or modeling. Ideality and Constructiveness working together make the artist, the inventor, the mechanic.

CALCULATION.

A boy near Vienna was spoken of on account of his great talent for calculation. He had not received any particular instruction beyond that bestowed on other boys at school; and was about on an equal footing with them. Dr. Gall induced him to come to Vienna, and when nine years of age presented him to his audience, when there were given him three numbers to express which required from ten to a dozen figures, and he was asked to add them, and then to subtract them; then to multiply them, and then to divide them by a number of three figures; he glanced once only at the numbers, then raised his eyes and nose in the air and indicated the result of his mental calculation before the audience had had the time to make the calculation, pen in hand. He had created his method for computing numbers.

A lawyer of Vienna stated that his son of five years of age occupied himself exclusively with numbers and calculations in such a manner that it was impossible to fix his attention on any other game. Dr. Gall compared his head with that of the boy just mentioned, and found no other particular resemblance, except in the remarkable prominence at the external angle of the eye, and a little to the side ontward. These cases suggested that the talent for calculation might be connected with a particular organ. Dr. Gall sought for men distinguished for this power, in order to verify the discovery. He found a man whose favorite occupation was to invent and solve problems in arithmetic, and discovered in him the same configuration. He visited private families and schools, and desired the children distinguished for calculation to be pointed out to him, and still the same development recurred. He therefore felt himself constrained to admit a special faculty for this talent. In Scotland they had a celebrated calculator, and in America we had Zerah Colburn with a corresponding development of this part of the head. It is not always an easy organ to determine, on accouut of its peculiar situation, but we have no doubt of the location of the organ and the function it performs.

TUNE.

The organ of Tune is situated on the lower part of the temple, a little backward and upward from the eyebrows. Dr. Gall discovered the organ by noticing this part large in a young girl, who could repeat or play whatever she heard, and recollected whole concerts if she heard them only twice. By examining carefully the heads of all the persons to whom he could gain access, who were distinguished for musical talent, he found it largely developed. The organ is sometimes diseased. Dr. Andrew Combe attended a young lady who complained of an acute pain at the extreme angle of the temple on each side, precisely in the same position of Tune; the organ was largely developed in her head, and in describing the seat of pain she placed the points of her fingers exactly on the location of the organ. In sleep she dreamed of music; during the day the excitement of the faculty reached such a height that

it could not be controlled; she felt such an irresistible passion for music that it was painful beyond endurance to repress. She insisted upon rising from her bed and being allowed to play and sing; that being unadvisable, she seized a guitar and gave way to the torrent, and with a volume, clearness, and strength of voice and a facility of execution which was astonishing.

A boy in the City of Washington was kicked by a horse in that region, and he whistled constantly; would whistle even in his sleep. The physician, Dr. Miller, informs us that, on making subsequent examination of the wound, he found a splinter of the skull thrust into that part of the brain where the organ is located, and the irritation caused the irresistible tendency to whistle. He removed the bone, and he continued to whistle until healing set in, and he whistled less and less, until he came back to his former condition. There are many other interesting facts that go to prove the location of the organ of Tune.*

Our Country and Its Resources.

That which makes a good Constitution must keep it, viz., men of wisdom and virtue; qualities that, because they descend not with worldly inheritance, must be carefully propagated by a virtuous education of youth.—*William Penn.*

FARMING IN THE SOUTH.

LETTER II.—SOUTH CAROLINA.

IT is as pleasant to travel in the early spring as during late fall, since there is the same immunity from dust and heat, and nature appears equally charming in donning a fresh array of vernal garniture as in assuming the parti-colored vestments that precede the sere and yellow leaf. It is peculiarly enjoyable to journey southward in the spring, before the malaria of the moss-hung swamps has permeated the air and water; and when, as we advance, leaving behind us frost and snow and ice-bound streams, we come where the sun-god has kissed his earth-mistress into the glow and warmth and joy of renewed life; where the leaf-buds are swelling, where the white-oak axils are the size of squirrels' ears, and Indian corn is being planted, where the pink of the rose is breaking through the green calyx,

> "And the fragrant hawthorn bramble
> With the woodbine alternating,
> Scents the dewy air."

Just so looks the vernal prematurity of the land of the Lords proprietors as one progresses in the month of March along the "Wilmington, Columbia, and Augusta railroad." Here, as we come upon a two mile trestle, over a river-swamp, is a golden glory of yellow jasmines, thrusting the sweets from their scented stars to every passing zephyr; a purple inflorescence of red-bud blooms, the deceitful Judas-tree of the botanists, blue clematis tangling its clusters among the satin-white bay-flowers, overshadowing red cypress knees, and dropping their perfumed blossoms into the black, bankless, still, swamp waters! This is South Carolina! this is the country where cotton reigns king; and now, as we emerge from the swamp, we pass through upland thickets of live-oak—grand trees with the traditional moss-banners; lanes hedged with creamy Cherokee roses, leading to the old-fashioned, white-washed planter's houses, a grove of scrub-oak and a long row of cabins, the whilom quarters of the quondam slaves; and then a wide, level sweep of rice fields, where light spires of daintiest green float on the surface of water—a landscape which a breath of wind has power to change from looking like a quiet lake to a sunny, verdant meadow. Many of the most fruitful rice fields of South Carolina have lain unproductive since the termination of the war brought about such a gigantic revolution in the labor systems of the country. It is impracticable for white men to cultivate them, and a condition of *quasi*, if not complete subordination, seems to have been necessary to the disciplined labor involved in rice culture. The rice swamps are the homes of alligators and gophers, uncouth creatures that do not always act purely on the defensive, but on occasion "had as lief" make a supper of a man

* To find the exact location of all the organs, see the PHRENOLOGICAL BUST, for sale at this office.

as the old Egyptian crocodile. There is more upland rice raised in South Carolina now than formerly, a system of more various products having been originated by the necessities of the times. There are vast stretches of country bordering the railroad where one sees little but long-leaf pines, with white-scarred face, turpentine distilleries, and barrels of rosin. This is a branch of Southern farming that has flourished apace under the new order of things. The intervals of leisure, and changes in labor involved, suit the genius of the newly-freed men; and the turpentine farmers never have any difficulty in "hiring hands." Wine-making is carried on to some extent in the State, and is found to pay handsomely; but when one strikes the cotton region he reaches the true Utopia of South Carolina. The culture of this semi-tropical plant is carried on quite scientifically by the experienced planters. As a body of men this class of the population is well-informed and energetic. The use of fertilizers is universal among them, and the home production of composts receives their special care and attention. On wet days in the fall carts may be observed busily hauling pine, straw, and fallen leaves from the thickets and woods, depositing them in the cattle-lots, yards, and thoroughfares of the plantation. Added to this are the rakings from fence corners and stables and the offal from negro quarters. In the spring, the broad, fresh-plowed fields may be seen spotted all over with the black compost heaps, interspersed with piles of cotton seed, which have been well rubbed in dirt. Then follows the turn-plow and the shovel, seed put in, a "stand" in a few days, and then "chopping out." From the middle of April till July the struggle is incessant to keep the cotton clean of grass, as on this depends its productiveness, and also, to some extent, its ability to withstand a drought.

Guano is used to an enormous extent in South Carolina, also the phosphates so extensively manufactured in the vicinage of Charleston. When there is drought guano seems to aggravate the fatal and oft-recurring disease known as Rust, which, in truth, is no disease, but an exceedingly minute insect, which fastens, multitudinously, on the leaves, and, devouring them, causes the forms and tender balls to drop off, and so incalculably shortens the yield of cotton.

VIRGINIA DU RANT COVINGTON.

WILLIAM H. SEWARD.

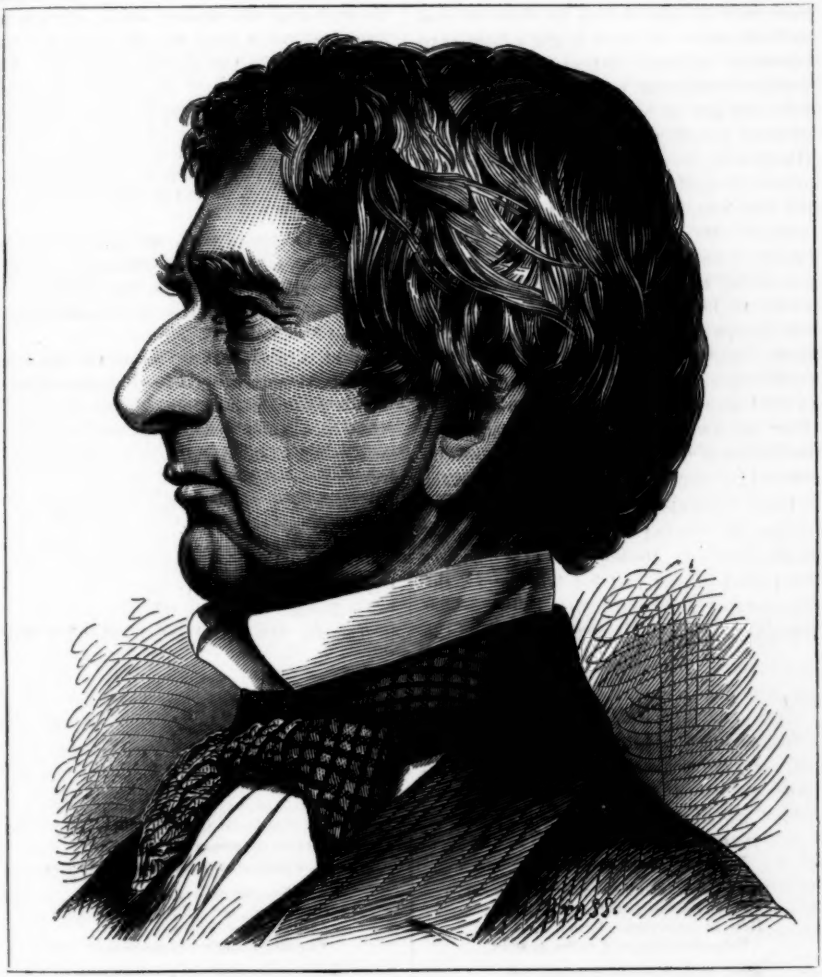
THE announcement of the death of this distinguished statesman has aroused the attention of the American people to a sense of their obligations to him while an active officer in our Government. Perhaps it will never be entirely known to what an extent the security and success which we experienced during the late war were owing to his efforts and splendid diplomatic ability.

The death at his residence in Auburn, N. Y., October 11th, was sudden, inasmuch as we had become impressed with the probability of his longer sojourn among us. This impression doubtless was in a great measure due to the protracted tours which Mr. Seward had undertaken and had successfully accomplished in foreign lands. Besides, he was known to be in the enjoyment of vigorous intellectual health, and closely occupied with the preparation of a work giving a history of his life and times. This, unfortunately, he left but little more than half finished. He died in his study, surrounded by his books and papers.

The name of no living man had become more widely known throughout the civilized world than that of William H. Seward. During his travels in Asia and Japan, he was everywhere received with all the respect accorded to royalty. His greatness had penetrated into the recesses of heathen lands.

He was born in Florida, Orange Co., N. Y., May 16, 1801, and, consequently, was in his seventy-second year at the time of his decease. His parentage comprises Welsh and Irish stock. Perhaps the former predominated somewhat in the cast of his features and the general mold of his frame. There was a high degree of elastic endurance in his temperament and general organization, a degree rarely surpassed. Few men have given more years to arduous public services than

he, and very few have shown so much vigor, freshness, and original power in their performance. It will be remembered that at the time of the assassination of Mr. Lincoln, Mr. Seward, too, was made the object of a deadly attack, which very nearly deprived the nation of his invaluable services, and doubtless so impaired his physical powers as to shorten his life by many years. He was thoroughly educated for the law, and admitted to the bar in 1822. In early life he became a politician, taking a conspicuous place as an anti-slavery advocate. In 1838 he was elected Governor of New York, and distinguished himself by a wise and judicious administration of State affairs. He was re-elected in 1840, and at the end of his second term returned to the practice of law. In 1849 he



was elected to the Senate of the United States, where he became the peer of Webster, Clay, Everett, and the other great men of that memorable period. During his Congressional career, on account of his views on social and political affairs, he was made the

subject of much criticism and severe reflection; but, a disciple of Jefferson and John Quincy Adams, he always pursued a course consistent with the fundamental American principle of equal rights before the law; and in later years the clouds with which envy and detraction had sought to involve his name were dissipated, and his character and motives shone out in so bright a light as to command universal respect. His trust in popular institutions, in their capacity to correct evils and to secure the prosperity of a growing people, was steadfast and sublime. His trust in the spirit of the people as being adverse to a disruption of the Government, led him into error in regard to the recent conflict. He believed, as Mr. Lincoln believed in the earlier days of the secession movement, that the "irrepressible conflict" would be brought to a peaceful and happy termination without a strife of blood. But he was right at least in his prevision that the conflict would end, as it did end, in a triumph of the Union cause; but he was unwilling to draw the sword in defense of the existing institution of Government while a chance remained for securing a settlement without it.

In the beginning of Mr. Lincoln's administration, Mr. Seward was given the first place in the Cabinet. During that ever-memorable period of war and involved issues, the Secretary of State pursued a course which brought renown to his country and won the admiration of a world. At the close of Mr. Johnson's term of office he withdrew from public life. In '69 and '70, he made the tour around the world, to which we have already alluded.

In his disposition Mr. Seward was very amiable and generous. In all the relations of life his reputation was without stain. He was a good husband, a good neighbor, and a good friend, as well as a good and great citizen. In Auburn, where he lived so long, he was universally beloved and honored, and the announcement of his death fell upon the hearts of the citizens, who, as a whole, exhibited great fondness and pride in him, as if each individual man and woman had lost his or her own father.

It is to be regretted that he was not spared long enough to finish the autobiography which he had designed; but we are informed that it will be completed by his son, to whom it was in great part dictated.

By his will Mr. Seward bequeaths his late home at Auburn, with all its contents and surroundings, to his three sons, by one or more of whom it will doubtless be occupied, and preserved intact as far as possible in its present condition. His other property, consisting in part of securities, but mainly in real estate in Auburn and in this locality, he divides into four equal shares among his sons Augustus, Frederick, and William, and his adopted daughter, Olive Risley Seward; the two last named being deputed to execute this provision of the instrument. His estate is estimated at $200,000.

ROCKY MOUNTAIN ECHOES.—No. 6.

BY WILLIAM H. PABOR.

THE CROWN OF THE CONTINENT.

Fall, snow, upon the mountain top;
Shine, sun, upon the emerald plain;
The frostage of the winter drop
In presence of the summer's rain.

Beat, storm, against the mountain's breast;
Flash, lightning, on the plains below;
Here, in the sunshine, I can rest,
Unheeding lightning, storm, or snow.

Blow, wind, along the mountain side,
And whistle startled cañons through;
The pines, that crown the bold Divide,
No sweeter music ever knew.

Bloom, lilies, by the river's edge;
Hide, honeysuckles, in the wood;
Pause, deer, upon the rocky ledge;
Here nought disturbs the solitude.

But there shall surely come a time
When mountain top and valley base
Shall hear the echoes of the ryhme
That floats around man's dwelling-place.

Where Switzerland and Italy
Clasp hands, and smile a welcome down
To denizens beside the sea,
To peoples crowded in the town;

Where rivers clear, and vales of grace,
And plains that stretch an hundred miles
Await the coming of the race
Whose toils shall win dame Nature's smiles—

Ere long shall rise imposing spires,
And stately towers and homes so sweet,
Where, warmed by love's eternal fires,
The tender human graces meet.

O, land so fair beneath the sun!
O, Colorado! we—who know
The life-breath that from thee is won,
The honey that from thee doth flow—

We, on our bended knee, can lift
Our voices to the blue Above
In thanks that in the mountain's cleft
Our days are full of life and love.

WOOLEN MANUFACTURE IN THE UNITED STATES.

THE exhibit made in the census of 1870 of this branch of American industry is certainly encouraging. There are in all 2,891 establishments in the United States, of which there are in Pennsylvania 457; New York, 252; Ohio, 223; Massachusetts, 185; Indiana, 175; Missouri, 156; Tennessee, 148; Kentucky, 125; Illinois, 109; Connecticut, 108; Maine, 107; Iowa, 85; New Hampshire, 77; West Virginia, 74; Virginia, 68; Rhode Island, 65; Vermont, 65; Wisconsin, 64; Michigan, 54; North Carolina, 52; Georgia, 46; Maryland, 31; New Jersey, 29; Texas, 20; Utah, 15; South Carolina, 15; Alabama, 14; Arkansas, 13; Delaware, 11; Mississippi, 11; Minnesota, 10; Kansas, 9; Oregon, 9; California, 5; Louisiana, 2; Florida, 1; and New Mexico, 1. The capital of these 2,891 establishments is reported at $98,824,531. The number of steam-engines is 1,050, with a horse-power of 35,900, and water-wheels with a horse-power of 59,332. The number of sets of cards is 8,366, with a daily capacity of 857,392 pounds of carded wool; number of broad looms, 14,039; narrow looms, 20,144; spindles, 1,845,496. The average number of hands employed during the year has been—of males above sixteen, 42,728; of females above fifteen, 27,682; of children and youth, 9,643. The amount of wages paid to these hands during the year is reported at $26,877,575; the total value of the materials used during the year was $96,432,601, of which the amount paid for chemicals and dye-stuffs was $5,833,346.

There were consumed during the year 17,311,824 pounds of foreign wool; 154,767,075 pounds of domestic wool; 17,571,929 pounds of cotton; 19,372,062 pounds of shoddy; 2,573,419 pounds of woolen yarn; 3,263,949 pounds of cotton yarn; 1,312,560 yards of cotton warp; 140,733 pounds of warp. The value of all other materials used was $5,670,250.

Among the productions of these 2,891 establishments are 63,340,612 yards of cloth, cassimeres, and doeskins, 58,965,286 yards of flannel, 1,941,865 yards of felted cloth, 2,663,767 yards of repellants, 2,853,458 yards of tweeds and twills, 14,078,559 yards of satinets, 5,506,902 yards of kerseys, 24,489,985 yards of jeans, 14,130,574 yards of linseys, 1,932,382 yards of negro cloth. Number of pairs of blankets, 2,000,439; number of horse-blankets, 58,553; number of carriage robes, 22,500; number of coverlids, 226,744; number of shawls, 2,312,761; number of pounds of yarn, 14,156,237; number of pounds of rolls, 8,683,069. Total value of production, $155,405,058.

This interest will grow, if permitted, until America will produce all the wool and woolen goods she consumes. Free Traders, however, would open our ports to foreign manufacturers, and this, through the competition of pauper labor, would have a tendency to break down and ruin this immense interest. Let Americans sustain America against all the world. We have enough to do at present to take care of ourselves and those who come among us, without, through unwise legislation, contributing at great sacrifice to sustain selfish capitalists abroad.

FRAGMENTS FROM MRS. HORACE MANN.

IN "*Moral Culture*" is a series of letters addressed to a friend by Mrs. Horace Mann, written in 1843, and first published in 1863, as part of the "Kindergarten Guide" of her sister, Miss Elizabeth P. Peabody, the second edition of which appeared in 1869. These letters, written as they were by the wife of so warm an advocate of Phrenology as the late distinguished educator, Horace Mann, must excite the interest of all true disciples of Gall and Spurzheim. The origin of these letters is thus explained by the author:

"I have been urged to publish these letters, written twenty years ago, as an appendix to a Kindergarten Guide, because the school herein described was a groping attempt at something of the same kind, and had left very pleasant memories in the hearts of the children referred to—now no longer children, but some

of them men and women nobly and beautifully acting their parts on earth as parents; and others—having died martyrs' deaths for human freedom in the desolating war that ravaged our beloved country—angels in heaven.

"If an inborn love of children and of school-keeping are qualifications for judging of the best means of educating them, I may claim to have known something of the theory and practice best adapted to that end. My *object* was to *put them in possession* of *all* their faculties. Many improvements in methods, and many facilities in means have been added to the resources of teachers since these letters were written. Physical training is felt to be of the greatest importance, in preference to the ancient mode of shutting children up many hours in close rooms, and repressing all natural and joyous life. The principle is discovered of educating by *directing* the activities. Hence the *Kindergarten*."

Notwithstanding the intrinsic merits of the Kindergarten method, its application in this country seems to have failed, in numerous instances, of the results aimed at.

Besides the above, the following extract from one of them must suffice for the present:

"I find a very great difference in children in regard to arithmetic. I have had one scholar who never could (she died at fifteen) go beyond a certain section in 'Colburn's Mental Arithmetic.' She reached that after repeated trials; for when I found her grounded (aground) at any special point, I always turned back and let her review; and in that way she would gain a little at every repeated trial. This child found geometry easier than numbers, and mastered 'Grund's Plane Geometry.' She could also write out a reminiscence of Dr. Channing's sermons, or remember anything interesting in history, natural history, or anything of an ethical character. I also had one gifted little scholar, who could not learn to spell accurately, but she *drew* with great power and beauty—with an 'eye that no teaching could give,' as was said of her by a fine artist. These discrepancies in talents are very curious. Phrenological philosophy alone explains them."*

* Since these letters were written, the St. William's School, established in Edinburgh, by George Combe, Esq., and in which that distinguished man taught personally during the latter years of his life, has proved conclusively that the phrenological philosophy is a fine basis for education. The principle there taught and practiced is, to cultivate assiduously those faculties which were found naturally deficient in the pupils; thus aiming to make *whole* men out of what otherwise would have been but *fragments* of men.

CALIPERS—TAPE MEASURES.

THE first engraving represents calipers used by those who study Ethnology and Phrenology. As the development of the brain begins at the *Medulla Oblongata*, or the point where the brain is connected with the spinal cord, distance from that point to any part of the surface of the brain indicates the development of that part. In order to determine the length of fiber from that central point of the brain, we must measure, during life, from the opening of the

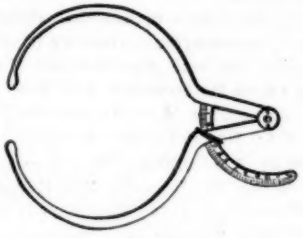


Fig. 1.

ear (see cut 2) to the surface of the head in its several parts, as at B, C, D, E, G, or the width of the head from side to side, directly in the region of the ears, to learn the lateral development. The bulb at the end of each of the legs of the calipers may be carefully placed in the opening of the ears (A); and the other end placed at any desired point on the head, and the scale, marked in inches and fractions, will show the width from point to point, when the calipers are open.

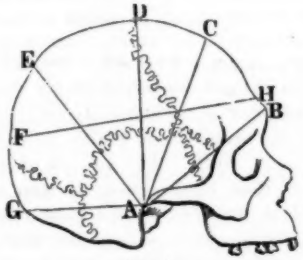


Fig. 2.

An opponent of Phrenology was recently in our office, and he said the difference in the thickness of different skulls was his stumbling-block in regard to the science. A skull happened to be within reach, and taking the calipers we measured the width and height from the opening of the ear to Firmness, then turning to the unbeliever, we applied the calipers in the same way to

his head, and we found that the skull, just above the openimg of the ears, was an inch and a half wider, and from the opening of the ear to Firmness an inch an a half lower, than the head of our critical friend.

"Is that possible?" said he. "I see now that distance from the center of the brain is your method of judging of the development of the brain; the slight difference in the thickness of different skulls can not account for the differences in the cranial development. If this is Phrenology, I have been opposing something different."

TAPE MEASURE.—Besides the calipers, we use a tape measure for ascertaining the circumference of the head just above the brow and around the most prominent part of the backhead (see cut, H to F.) We measure from the root of the nose to the back of the neck, or the spinal process, a sharp bony part just above the nape of the neck. We also measure from ear to ear, over Firmness, Individuality, Benevolence, Parental Love, etc.

A man who has had large practice in measuring heads will be able to estimate, within a quarter of an inch, the size which a head will measure, by the hands alone.

The calipers (made of composition metal which will not rust) we can supply at $6 per pair. Neat tape measures, suitable for use in measuring heads, we can send by mail for 75c., 88c., or $1 each, according to style.

IMPORTANCE OF MENTAL SCIENCE IN SCHOOL.

BY W. R. BIERLY.

IT is getting to be pretty generally conceded that the teacher, whether parent or substitute, must be to some extent acquainted with the laws which govern the actions of children. Taken strongly, a teacher or governor who would punish a child with a poker would be considered either devilish or insane. And why? Because he would be violating a law of nature which every one's experience proves to be correct and just.

But there are laws governing the mind in its relation to the body as well as laws determining the capacity of bodily endurance. Although the mind is not made of matter, yet, since it acts through a material medium of the body, its actions are much modified by the condition of the medium; and it follows that mental action, as known, is governed by laws similar to those attending bodily action. It is true these laws do not become as generally known as those which determine other things, because, perhaps, they are possibly a little more subtile and not sufficiently sought. Still, because they are not known, is no reason why they should not be known. And, then, if a law should be followed absolutely where common experience justifies it, so should one be followed which has been ascertained by study and observation. And since it is universally considered to be either madness or infinite ignorance, where one violates a law which every one's experience proves to be just, so should it be considered at least either criminal neglect or stupidity, when laws are not known which might be known by moderate study.

By parity of reason also, what is important in outward actions is of equal or even greater importance in the inner actions which precede and determine the outward. And here let authority strengthen the argument.

Herbert Spencer says: "Grant that the phenomena of intelligence conform to laws; grant that the evolution of intelligence in a child also conforms to laws; and it follows inevitably that education can be rightly guided only by a knowledge of these laws. To suppose that you can properly regulate this process of forming and accumulating ideas without understanding the nature of the process, is absurd. How widely, then, must teaching as it is differ with teaching as it should be, when hardly any parents and but few teachers know anything about psychology."

This is certainly strong testimony in behalf of a knowledge of mental science in our schools. Bewailing the absence of the study from the teacher's course, Spencer enforces the necessity of its immediate supply, and would have parents interest themselves in the same study. Needs the importance of mental science in the training of the young any further defense?

Is there a weightier consideration than the destiny of the soul? Not in life, nor in death; not by reason, nor by experience; not in science, nor in revelation can there be discerned anything of equal intrinsic importance.

It is related that an excellent mother, in writing to one of her sons on the birth of his eldest child, said, "Give him an education, that his life may be useful; teach him religion, that his death may be happy." What more could be required to round out and perfect the human character and make it meet for earth and heaven?

NEW YORK,
DECEMBER, 1872.

GOOD-BYE 1872.

IT may be that Longfellow, in his oft-quoted poem "Excelsior," embodied the prevalent sentiment of the American public. "Advance," "onward," "progress," are the watchwords we hear rung out on all sides; but we feel that, in too many cases, these are indicative of false sentiment, of unduly exaggerated hopes, and of conduct based upon unsubstantial premises. The youth, so feelingly described by Longfellow, lost himself amid the snow-drifts of the mountain. His cry of "Excelsior" led on only to destruction. The American people are, as a nation, wonderfully active. There is, indeed, too much action and too little thought; hence, the repeated failures which are exhibited on all sides. But we would not have it understood from these remarks that as promoters of a special enterprise we are in any way opposed to the sentiment of *progress;* for the idea in itself conveys much of encouragement and stimulation to general society; but in order that we may, in our own sphere, press on the more briskly, we would recur to our past, and seek for a sound basis on which to found hopes of future advancement.

During the past twelvemonth there have been published within the covers of the PHRENOLOGICAL JOURNAL over two hundred articles of a special nature relating to biography, history, science, and art, besides a multitude of brief sketches and paragraphs touching as many different subjects of interest. Our illustrations have been thickly sown; a brief examination shows that an average of fully one hundred and eighty engravings, embracing almost every variety of subject, from a portrait of some eminent man or woman to an exhibition of the fry of shad, have been introduced into the letter-press.

The endeavor has been made with as much earnestness as the object has been ever kept in view to glean from the progression of scientific research such facts and information as would be practically valuable to our readers. Especially has our attention been given to those eminent scientists who, like Huxley and Tyndall, have devoted themselves in great part to investigation of physical phenomena having more or less relation to human nature; or, like Jackson, Bain, and Maudesley, have sought to open up to our clearer view the functions of mind. As Americans, we have given prominence to American science, art, biography, and social economy; and what has been gathered from abroad to garnish the several departments embraced in the JOURNAL, has been so gathered because worthy our serious consideration.

The series of illustrated essays on "Expression: its Anatomy and Philosophy," that on "How the Different Faculties Combine," and the articles on fish and their culture, have received many warm encomiums from the press and individual readers, while single articles here and there published in the course of the year have been acknowledged by correspondents as of special value in one way or another to them. With such evidence of appreciation, we approach the close of 1872 with few regrets.

Our aim has ever been to make the JOURNAL a power for good among men, and our hopes, although not fully real-

ized, have met with so much encouragement that we could not now falter in our efforts without experiencing an overwhelming sense of recreancy to duty.

This number of the PHRENOLOGICAL JOURNAL for December closes Volume Fifty-five, but the January number of 1873 will open Volume Fifty-six; and while we are now called on to say *Vale* to a large clientage that has afforded us aid and comfort during the twelvemonth past, may we not expect to say *Salve* to as large a retinue of well-wishers next month?

ON THE FORMATION OF CHARACTER.

THE sculptor takes a mass of soft clay, which he works into a copy of the figure he would put into stone; then the block of marble is placed in position, when, with chisel and mallet, the work of hewing and shaping begins. How unlike an image of the human head or an angel that block of stone first appears! and what study and labor and skill it will require of the artist to bring his work to perfection, and develop a copy of "the human face divine," of the image or the angel for which he studies and strives. But the angel is there, and if the sculptor knows how, he can bring it out of that cold and hard marble so perfectly that you almost hear the rustle of its wings! How beautiful! How exquisite! How angelic! Think of it; there was the simple block of almost worthless stone—of which there are numberless quarries and mountains just as good—which, by study, skill, and effort, has been converted into a thing of beauty and a joy forever.

Reader, did it ever occur to you that each and every human being, when uncultured and undeveloped, may be likened to clay in the hands of the modeler, or like marble in the hands of the sculptor? Do you not now see the simile? God created every human creature with a never-dying soul. Each has an angel in him. Alas! alas! how many remain awhile on earth, even into old age, without being converted into anything higher or more beautiful than the original clay or stone, as we find it in the field and in the quarry. The angel remains concealed, covered up, hidden; and the life of such a man is, indeed, a miserable failure.

In considering the matter of success or failure, we blame no one. Most persons are, to a considerable extent, creatures of circumstances. If they *knew* how to make themselves beautiful, they would do so; if the invalid *knew* how to woo Hygeia, and charm away disease, the aches and pains which torture him, he would readily do so. But he does not know how, and, through ignorance, he brutalizes instead of beautifying himself; and, through ignorance, he violates the laws of health, and then suffers the penalty of this violation and sinning. If sins committed in ignorance, against the moral law, may be "winked at," sins against the physical law are punished. Children born of low, dissipated, drunken vagabonds, and permitted to grow up in ignorance, vice, and crime will visit these evils on the society in which they are permitted to dwell. No one lives to himself alone; each is more or less affected by all.

We form character as we form images—by modeling, working, training, education; by the lives we live, aye, by the very thoughts we entertain! "As a man thinketh, so is he." Each thought, each act, each emotion which passes through our minds, leaves its traces on our souls and on our features. Our thoughts and our emotions are the sculptor's chisels,

and our faces show exactly, to the close observer, what is going on within. One who entertains lustful thoughts looks lustful; and this passion is burning within, and will devour him unless he change the current of his thoughts and his blood into other channels, and escape before it be too late. But many, nay, thousands, are engulfed, swallowed up, and lost through this one burning passion of lust. Every feature, every lineament of their bodies and brains has written all over them, in unmistakable signs, the letters, L-U-S-T! Oh, what a purgatory is this!

AVARICE.

Another is given over to avarice. He is too miserly, too mean to be honest. To get pelf is his besetting sin. He craves money, or land, or stocks, or other property, and to secure it he perils health, he perils comfort, he perils home and even life, that he may get and count that which can be his only for a brief space of time, when he must unlock his strong box and leave it all. Look at the miserable miser! His hungry, craving, grasping, shriveled being does not rise above "counting coppers." Look at him! O, wretched creature! He has lost sight of the beautiful in art, improving literature, joyous music, warming friendship, comfortable home, Christian charity, heavenly religion, aye, his God, in the gratification of a morbid *love for money*, which the Scriptures say is the root of all evil—not the money, but the *love* of it. What a character he has formed! How utterly worthless! How utterly miserable and wretched! Deliver us, O Heaven! from that state of mind which knows no sympathy, no kindness, no charity, no peace. Look once more at the mean, selfish, mercenary miser, and then turn to

THE SLAVE OF APPETITE.

In forming *his* character, he sought what he called the luxuries of life, the good things of the table. Plain and simple food, which makes the purest blood, the best tissue, nerve, muscle, and bone, was not enough for him. To give his food an artificial relish, he must needs mix in pungent condiments, must make it hot and biting with mustard, pepper, spices, etc. Such high seasoning in itself creates an appetite for narcotics. Then the fragrant Havana is required, the pipe, the quid, or, it may be, pulverized tobacco, in the form of snuff. These substances are generally followed by light wines, beer, and the like. Later, something stronger is needed to support the flabby muscles and flagging spirits. What else but alcoholic stimulants can supply the demand of these perverted appetites? One resorts to opium, which must be repeated in larger and larger doses to produce the excitement which the poor, diseased creature craves. This is used for a time in secret, but the habit grows upon the person, and without his accustomed dose he would become almost delirious, as he certainly will if he continues it.

Now comes the guzzling doctor who *advises* alcoholic stimulants. Bourbon or brandy, rum or gin, wines or bitters, are his sovereign remedy—his universal panacea. He says his patients like it, and he prescribes it even for nursing women! Think of a babe taking bourbon through its mother's milk! What will be the state of its appetite when it matures? He will form a character in accordance with these conditions. He will, step by step, puff by puff, sip by sip, become what his inclinations—not his judgment—make him. What harm is there in a social glass, the pipe of peace, or a pinch of titillating snuff? He is forming "character" now. Still, he don't get drunk, though he may become exhilarated; but he frequents the saloons, the club-rooms; is invited out to dine where only "gentlemen" assemble. He visits the race-course, spends

much time at the playhouse, indulges in games of chance. What is the harm? His bets are small, and his winnings nearly equal his losses; and what if his associates are not of the best? Need he become contaminated because they are so? He has no idea that he is even now on the brink of a precipice; a few more steps, a year or two later, and his habits are fixed, as with the graver on steel. He is so perverted, so diseased, that he can not trust himself, nor can others trust him. Now the flood-gates of appetite are open, the bars are down, restraint is thrown off, and the demon rushes his victim to the brink of perdition. He is poised as between heaven and hell. His passions become his master—and he is lost! This is but the picture of thousands who, giving way to a perverted appetite, have gone down to dishonored graves, and left behind a "character" to curse their progeny. Children take after their parents; children inherit a tendency, at least, to follow in the footsteps of their progenitors. Seeing their faults, however, and with resolute self-denial, they may escape, and even eradicate from their blood the disease and poison which they inherit. Then, by higher aspirations and by the grace of God, which is sufficient for all who ask it, they may form a very different character, and come up into manly manhood or beautiful womanhood, fulfilling the ends of their existence, glorifying God through healthy bodies, healthy brains, and regulated minds.

SENSITIVENESS.

Who and what are they who form such unlovely characters that they become morbidly sensitive? So touchy that they "fly in a passion" at the slightest neglect or criticism? Is not this a most unamiable trait? And is it not the duty of such persons to pray for strength and grace to keep their excessive sensitiveness in subjection? Then there are the complaining, fault-finding, peevish spirits, satisfied with nothing. Such are on the road to despondency, which may end in insanity or suicide. The child begins to form *that* sort of character by sulking, moping, and contrariness. It grows into a "scold," and ends in a nuisance, which nobody can endure, and is only removed by the scythe of Time.

Reader, where do you stand on this matter of character? Are you drifting slowly down the current of self-indulgence? or are you bravely rowing against the flood and the tide of temptation? Are you cultivating self-denial? Can you say "no" to a selfish desire? Can you subordinate self to the will of your Maker, and can you say, "Thy will be done?" Can you ask God's blessing on the course you are now pursuing? If so, you may hope to rise and shine, and to leave a name and a character worthy of a godly man.

We are free to choose the right way or the wrong way, the upward way or the downward way. Let us choose wisely; let us choose NOW.

YOUR RIGHTS.

READER, did it ever occur to you that, while you behave as well, you have as good a right to live in this world as the best one in it? It is verily so. You have a right to work and earn your own living—to be independent. You are not a slave!—except to some habit of self-indulgence, which binds one tighter than with cords of the strongest hemp. One has the right to all the culture and improvement of which he is susceptible. He has a right to worship God according to his own conscience; but unless he become enlightened, his religion will be simply superstition. He has a right to help make

the laws of the land, and then to obey them. He has a right to breathe *fresh air* rather than suffocate in a room filled with filthy tobacco smoke, or bad odors generated in low, dark, dank cellars, where decaying vegetables, putrid fish, or tainted meat are sometimes kept too long. Each man has a right, in this country, to one wife, if *she* be willing; and each woman to a husband, if *he* be willing, and all are of proper age, being of sound mind and body, and not cousins or too near of kindred. In these matters it takes *two* to make a bargain; sometimes three, where there is some scheming, deception, and fraud. Better "go slow" when you go a courting; be sure you are right, lest you regret when too late. Good health, good sense, and good morals will stay, while curls, dimples, frills, flounces, bustles, and false "breast-works" are put on and off, at the pleasure of the wearer. Good teeth and good digestion are useful to have in a family, while headaches, backaches, sideaches, teethaches, and heartaches are very uncomfortable. Better not marry an invalid unless you propose to open an hospital. A great, awkward, clumsy sick man around a house is a ——, while a sickish woman, who has laced too tightly, danced too late, or eaten too much froth and foam, and drank too much champagne or "light wine," is even worse. Her little head is hot; her hands and feet are cold; her breath very fragrant, but not at all like the fragrance of lilies or roses.

This comes of fashionable dissipation. Now, we maintain that she has a right to decline this sort of martyrdom, and to *enjoy* the luxuries of plain and simple food, pure water and pure air, with all the sleep she needs. Woman, assert and maintain your rights! The PHRENOLOGICAL JOURNAL will defend you against your enemies. It will try to bring about a better condition of things, even in fashionable society. We want to release woman from the slavish toil and care now expended on her head-gear. It is not good taste to pile on great wads and rolls of wampum, hemp, or hair, nor is it healthy. One may crimp and frizzle as much as she likes, and look like a negress if she please, and *that* won't impair her health, though she looks like a fright. She has a right to cut her hair short, like Anna Dickinson or Florence Nightingale, if she will, and it's nobody's business but her own. She has a right to be neat, tidy, and comfortable.

We, each of us, have a right to be kindly, charitable, and to fulfill the requirements of the Scriptures and of humanity, by "visiting the fatherless and the widows in their affliction, and keeping ourselves unspotted—unperverted—from the world."

Young men have a right to reject nasty tobacco, when a fool or a felon tries to tempt them to take it; and young women have a right to say No to a gambling, guzzling, smoking, chewing, or snuffing popinjay when he proposes. Indeed, she will but make her own shroud, if she accepts *such* an offer. She has a right to her liberty and her life, though she remain alone for a time.

Oh, the right to breathe, to think, to act, and to do as we like! What a privilege! Then the idea that we may grow in grace, and in a knowedge of heaven and of God! Reader, do you realize your rights? Will you grant the same rights to others which you yourself enjoy? Will you do as you would be done by? Then consummate the crowning act by subordinating yourself to your Maker; by obedience to His laws, and by bringing about that condition which it is your *right* to do, namely, helping to establish a heaven here on earth. This is your duty, your privilege, and your right. Will you do it?

"THE ONE-EYED CONDUCTOR" AGAIN.

OUR spicy neighbor of Philadelphia, *The All-Day City Item*, in noticing the PHRENOLOGICAL JOURNAL, thus refers to the subject which heads this article:

"The PHRENOLOGICAL JOURNAL for November has 'another explanation' with regard to the phenomena of the appearance of the 'one-eyed conductor,' whom, it will be remembered, appeared to a lady some eighteen months after his death, and warned her of an accident which was to take place shortly after—within a few hours; and which the lady escaped by giving heed to this warning. To us, all the explanations are ingenious enough, but they do not touch upon the vital point. That the conductor should be seen plainly, visibly, violently gesticulating, by a person depressed in spirits, broken in health, upon the very spot where she had conversed with him some two years previous, can readily be believed, and one need not go far to find an explanation for such a phenomenon. But how is the fate of the 'accident' which followed the warning to be accounted for? Was it not a mere coincidence? Or are we to understand that others than Spiritualists believe in the return to earth of persons after they are dead. This point is still as obscure as ever, nor have any of the explanations that have reached us in the slightest degree assisted in fathoming it."

We introduced the story of the "One-Eyed Conductor" not to provoke controversy, but because it is a good illustration of one class of psychological phenomena, one phase of the things interesting to everybody, yet mysterious and unaccountable to all but two classes of persons—one class that accepts the Spiritualistic teaching, accepts it as a veritable reappearance of the man who, in the body, had once instructed the lady in regard to signals of danger on a train of cars; the other class is composed of those materialists who explain every phenomenon on the basis of physical science, and who would reduce religious faith and emotion, or the pathetic power of first love to some law of chemistry in relation to carbon, oxygen, and electricity; or endeavor to explain them by some physiological speculation about blood-disks, nerve-cells, brain-waves, etc.

It is amusing to look back over a third of a century and recount the successive changes in the treatment of psychological subjects by a certain class of thinkers, or, rather, talkers. When animal magnetism was introduced, and by its professional operators apparently innocent and ignorant persons were put into an abnormal condition and appeared to perform wonderful actions, the credulous lookers-on accepted the phenomena in verity; another class of open-minded people accepted the facts and tried to find a philosophical solution of them, while a third class that makes it a special business to conserve the old truths and frighten back all innovators in the field of new thought, objected outright to the whole theory and practice of magnetism, decrying it as the deception of tricky men or as the work of the devil, or, if it had any basis in truth, it consisted in some peculiar susceptibility of the nervous system of an impressible subject.

Not long after this, clairvoyance was announced. The first class, already alluded to, believed thoughtlessly, with open eye and mouth, and uplifted hands. The second class investigated, was astonished, but sought for the philosophy of the subject and professed to have found it; while the third or conservative class repudiated clairvoyance as a superior manifestation, by saying it was only a phase of animal magnetism, and thereby easily explained and understood. Clairvoyants continued to flourish and to manifest powers which seemed to transcend all former conceptions of the possible, and to defy explanation on any hitherto accepted law of physics or metaphysics.

Spirit-rapping was the next step in the realm of the wonderful. It seemed to bring a mysterious intelligence into view, and to act in a way not explicable by any knowledge the world had ever hitherto possessed. Our conservative class, sometimes speaking from the pulpit, sometimes through the press, denounced the new wonder as simply another form of animal magnetism.

"Writing and speaking mediums" next challenged criticism and demanded credence. Then the sturdy objectors said the whole phenomena of spirit visions or writing were produced by clairvoyance, as if the latter were a settled and accepted law.

Thus the world of mind seems to linger but one step behind the foremost mystery—to explain the last by the acceptance of the

previous step in the line of the progress of wonders. Thus spiritual manifestations were only clairvoyance, as clairvoyance recently was only magnetism, and magnetism only electricity in connection with a peculiar condition of the brain and nervous system of susceptible persons.

There must be some law on which may be founded an explanation of all these phenomena. That they exist is unquestionable, nay, demonstrable; but what the law is, how it operates, how much of the manifestations are referable to human magnetism, how much to psychology, and how much to disembodied intelligences, acting upon or through the living, or becoming cognizable to persons in the body, is as yet an open question. It is not for us to say just where the line of truth ends and the domain of deception and error begins. Certain it is that under the Jewish dispensation men believed in the conscious existence of the departed, and in their occasional manifestation to men in the flesh, and all Christendom has believed and taught the doctrine of "the communion of saints" as an article of orthodox faith.

Is it wise or profitable to dogmatize on anything outside of the mathematical, the demonstrable? One generation accepts the advanced ideas which to their grandfathers were heterodox; as a gifted son of that country said, England employs itself in erecting monuments to men of genius whom their fathers permitted to starve.

Let us "try all things and hold fast that which is good," and "let every man be fully persuaded in his own mind."

"FANNY FERN"—MRS. PARTON.

IN MEMORIAM.

WE have the melancholy task of recording the recent death of another character well known in the walks of American literature.

Sarah Payson Parton, better known by her *nom de plume* of "Fanny Fern," died in the latter part of October. She was born on the 9th of July, 1811, in Portland, Maine, and was the daughter of the distinguished *literateur*, Nathaniel Willis and his hardly less distinguished wife, and the sister of N. P. Willis, the poet. She was educated at the school recently established on an experimental plan of Miss Catherine Beecher, and was there noted fully as much for her bright and cheerful disposition and queer escapades as she was for her fine intellect and readiness in acquiring knowledge. Shortly after leaving this school in 1837, she was married to Dr. Eldridge, of Boston, and at his death, in 1846, was left with three children in very straitened circumstances. As a means of support, she adopted the profession of literature, for which her wit, sprightly imagination, and ready command of language well fitted her. Her first venture was made in 1851, when she wrote an essay signed "Fanny Fern," for one of the literary weeklies of Boston. From this time forth she wrote largely and constantly, publishing two collections of her sketches, "Fern Leaves" and "Little Ferns for Fanny's Little Friends," and two novels, "Ruth Hall," in 1854, and "Rose Clarke," in 1857. The collections of sketches met with a very large sale; of the first, not less than 75,000 copies being sold, while the second ran through several editions. The novels also sold very well, "Rose Clarke," a cheerful and pleasing story, finding many readers, while "Ruth Hall," being supposed to contain passages from the author's domestic history, was extensively read. In 1856 the popular authoress was married to James Parton, Esq., the well-known and brilliant essayist; and the latter portion of her life has by its happiness compensated for the many trials which in her early and middle life she was forced to undergo. It was our intention to publish a portrait of this lady, but having learned from Mr. Parton that there was no likeness of any kind in possession of the family, we were obliged with much regret to omit it.

IN THE BASIN OF MINAS.

CAPTAIN BECKWITH, of Hantsport, N. S., with whose name and contributions the readers of the JOURNAL are quite familiar, and Professor William Elder, of Acadia College, have spent a considerable portion of the summer, commencing with the middle of June, in making scientific explorations in the classic Basin of Minas. The St. John *Telegraph* furnishes a summary of their labors thus far, from which we copy:

"They have undertaken the work as a labor of love, on their own account, and mean to go through with it. They are supplied with a boat, a tent, cooking materials, and limited commissariat supplies. They are sometimes supplied from the sea and sometimes from the

land, and are seldom without a good appetite, which makes up for the want of sauce and other delicacies.

"In economical minerals they have made some discoveries. At Wasson's Head, on the Parrsboro shore, they found five small seams of iron, of unusual fineness and purity. Two miles above the same place, at McKay's Bluff, on the coast, among *débris* and shale, they found fossils of the coal-bearing measures. They also discovered a seam of coal, of fine quality, six or eight inches thick. Some of these veins might prove much richer if traced for some length. The mineralogical collection is considered the finest and most *representative*, though not the *bulkiest*, ever made in this region.

"It is said that the explorers have found considerable deposits of at least one new mineral of much value, but those who have attempted to interview them on this subject, have not received much information. No doubt the facts will come out in due time.

"They have given attention to the geology of the Bay, and have fixed the height of Blomidon, which they set down at 1,250 feet. They have fallen in with some fine specimens of basaltic trap. The cathedral rocks, so-called, are as regular and beautiful as the basaltic columns of the Giant's Causeway, forming fine natural arches, caves, etc. In carrying on their scientific explorations, they have dredged the mouths of the Avon, Cornwallis, and Gaspereaux, but their dredging apparatus has been rather imperfect, a circumstance which Professor Baird, of the Smithsonian Institute (who has been engaged on the study of the food fishes, in the Passamaquoddy Bay), kindly offered to remedy, by tendering the use of his own superior dredging apparatus.

"The two scientific explorers will probably complete their geologic researches this season. They will then go into the botany and ichthyology of the Bay and adjacent regions. We hear that their boat is not well adapted to the purpose, being too heavy and cumbersome, making it difficult for the explorers to land at pleasure and haul it to a place of safety. We should suppose that Mr. Selwyn, the Director of the Canadian Geologic Survey, would be glad to have the assistance of such fellow-laborers as Professor Elder and Captain Beckwith. The latter gentleman has given attention to both science and commerce in many lands, and has written a good deal on the subject. The Professor is a Harvard man, and a writer for the leading periodicals of the day. If the Directors of the Canada Survey would even place a good boat and some suitable apparatus at the disposal of the explorers, this would be a service to them and to the cause of science."

A FEARFUL TEMPERANCE LECTURE.

FROM the police items of the New York *Tribune* we take the following, on which comment is unnecessary, it being in accordance with principles often enough enumerated in our columns:

"Among the names registered at the Tombs the other night was that of a youth, about fifteen years of age, who had been arrested for drunkenness. But he was not drunk, nor had he been drinking. He was, moreover, in good, sound health, but gave all the external indications of being intoxicated when arrested by a police officer. Upon protesting to the keeper of the Tombs that he was not intoxicated, it was revealed that the unfortunate youth had been born a natural drunkard, or, rather, that he had always acted like such a thing. He said that although in good health, he had never been able to walk without staggering. His speech was not unlike that of persons in a decided state of intoxication, and when excited he would mutter and reel. The unfortunate youth was detained until the next day, and was sent to the courts to be gazed at through judicial spectacles. A subsequent investigation of the case proved that the lad had been telling the truth about himself; but his condition revealed a demonstration of the natural law that the child is a fair copy of his parents. It appears that prior to marriage the father had been a secret but confirmed inebriate, and when the facts became known to the woman thus suddenly and unexpectedly, she wept in the most terrible manner. Almost broken-hearted, she contemplated the future misery in store for her. Months passed away, when it was discovered that the child at three years of age acted strangely, and at the end of six months the unhappy woman fully realized all her forebodings. The effect produced upon the mother was not without its influence on the father, however. Realizing, in the midst of tears of bitter anguish, the sin that had been visited on the child, the man reformed. He has now several bright children, and most exemplary ones, too, they are. But the boy that was brought into the Tombs was not drunk, but had entailed upon him a life of misery, as it was a blasted destiny."

Department of Literature, Science, Education.

MEMORY WORSHIP.

WHAT a blessed thing would it be if the teachers of our country could study Phrenology long enough to learn that there are several other faculties of the mind which require culture besides the memory. If they could feel that invention, Constructiveness, Ideality, and the remaining mental organs need development, instead of being allowed to lie almost dormant, what a stride in advance education would take!

Visit any school, listen to the recitations, how much original work is done in the study of any science? First, there is a reading-class. Every member rises in turn, reads a "verse," is corrected in pronunciation, emphasis, or style of delivery, and the class files back to make way for something else. How few faculties besides memory were exercised! In nine out of ten instances no other; no one's attention was directed to the sentiments expressed or facts stated, there was no discussion, no criticism, no thought evoked. If the same class every second day were obliged to bring for a reading lesson a half dozen original lines accurately spelled, illustrating some elocutional nicety, with a definition of every word ready in the mind, interest would be excited, mental action roused, Constructiveness, Causality, Comparison, and other organs, would find work, the whole mind with its various powers would show life, and the thought thus elicited would better aid education than the beauties of any author prosed over in the usual manner.

Perhaps mental arithmetic follows reading, and page after page is analyzed glibly, the teacher smiles approvingly and would dismiss the class only you stop her by asking Johnny Subtraction to make a problem or example himself; then you find, as before, memory is the pack-horse which does all the work. Suppose once in two or three days the class composed and solved examples made by themselves, would a simple request for a home-made problem meet such a blank silence?

Thus the day's work goes on; even grammar, which is pre-eminently concerned with the expression of thought, fares no better than the rest. Instead of pages upon pages of original written illustrations from the pupils, there is only a vast clatter of words called parsing; a little thought is here required, but memory does the chief work.

And through the whole school and college curriculum the same or a very similar plan is followed, with perhaps semi-monthly opportunities to use the whole brain in writing themes. Were it not that pupils must necessarily exercise thought upon the every-day concerns of life outside the school-room, the ordinary course of school education would make more people incompetent for the business of life than it now does. But, finally, there comes a blessed day, when the "education is finished," that is, the memory has been crammed to repletion, while the other faculties have followed the reapers at a distance, gathering as gleaners the scattered grains. What now? Will memory do the world's work as it has done that of the school-room? Now the pupil, male or female, is expected to use grandly the hoards of learning and the results of thought supposed to have been gathered and stored in the workshop of his own mind. There lies the fault; the learning has not been wrought over and woven into the texture of the individual intellect. It proves but an outside starching and dressing that must be principally washed out or, at least, rumpled, crumpled, and crushed before anything can be made of the fine, glossy-looking substance.

A course of study, as generally managed, does not materially aid one in the business of life. Unless the intellect was naturally uncommonly fine and vigorous, it rather trammels than helps. It is only after some years of efforts, struggles, and mistakes, one throws off the idea that his classical education will be of much value in advancing success, and finds that persistent work with all the mental and physical powers is really the great helper on which he may rely.

Most of the students of to-day imagine and believe, as I once imagined and believed, that the quantity of Greek, Latin, and mathematics they force their memories to retain, is the end and aim of an education, and will be the means of bearing them on to honor, wealth, and power. Now, no view of education is more erroneous or injurious, yet it is the usual one. And it is not surprising this is the case when such stress is laid, in schools of every grade, upon the amount of knowledge acquired, and not upon the thought aroused or inquiry suggested.

The world supposed a move had been made in the right direction when object-teaching was first broached, but the system seemed applicable only to the youngest students, and was immediately so hobbied by the one idea class it has fallen almost into disrepute. Still, it served a purpose, and will ultimately gain a higher place in public estimation than it has yet held.

Whatever defects the system has, it is founded upon one grand truth, that thought should be aroused before the memory is so burdened. It is not the cyclopedic mind that aids advancement and improvement; it is the inventive, thought-producing mind. Facts are the fulcrum, thought the Archimedean lever which moves the whole fabric of society. The man of thought always holds the first rank in public estimation. A poet is greater than a king; but we must take care we do not destroy our poets by choking their mental powers with the vast accumulation of truths we heap into the student mind, for there is danger lest we leave no room in which Ideality can work them into living forms and glorious creations. Discipline of mind is necessary, that discipline that comes only by severe, thorough study; but since the world's work requires originality, invention, and judgment, pray let us have some development of these powers and faculties in the world's schools.

AMELIE V. PETTIT.

THE MATERIAL CREATION.

THERE are good Christians and Philosophers, having faith in the religion of Jesus Christ, but who found their theological principles, apparently, entirely upon the teaching of the New Testament, in derogation to *certain portions* of the old. Of this persuasion appears to be "J. E." in the May number of the PHRENOLOGICAL JOURNAL. If the first part of the Genesis were not written by Moses, as some divines suppose; if Eden is a myth, the history of Cain hypothetical—so of the deluge, etc.,—if all these were mere abstract allegories, where is the judge to reveal to mankind the fact what certain portions only of Scripture are credible and of authentic authority? and what parts are they? Skepticism, pyrrhonism, loom up fuliginous, and shackle the ethnic soul in such views. For does not the last department of Scripture pivot on the old as a basis? and should the material existence of persons and scenes in the latter be disproved and made abstract legendaries, may not the same "Spirit of inquiry" attack the substantiality of the Gospel? It is likely that such speculative Christians do not understand the danger of incredulity concerning any definition of the real import of Revelation, or they would not thus extend to *rationalism* its strongest logic for creating a generation of ominous doubters. I read often of pious writers dwelling on Genesis, etc., as if they were the production of Moses alone. Gibbon, in his "Decline and Fall of the Roman Empire," has declared that the organization of the Jews was due to the daring ambition and exertion of a "bold leader," meaning Moses; and thoughtless Christians have occasionally fallen into this identical vein. Is not this all wrong, since Moses was only a passive instrument in the hands of a higher power, was sent unwilling to Pharaoh, was compelled to lead his people, and untimely died, because he ascribed a power to himself, due only to God?

I plead that the friends of religion and of purity of life, *i. e.*, moral perfection—which must intrinsically depend on the Decalogue given by Revelation from the top of Sinai—may be enlightened to comprehend that the truths of Christianity stand on the veracity, as it is written, of Genesis. Did man fall in Eden? Was it from the machination of Satan embodied in the serpent? *Was Christ the promised seed then vaticinated?* Make the substantial concrete of this history a myth of ideal, allegorical abstraction, and the promise of the Messiah a hazy dream, and in the *mêlée* the massive structure of the cross will be fearfully shaken.

Such reasonings will not do. They are pred-

icated upon Rousseau's idealism—a glittering reverie, which finally convulsed France, and shook it with the horrors of Robespierre and of Bonaparte. It is of the perplexing philosophy of that chemistry, which, dwelling in atoms and molecules, denies, like Berkley, existence to matter, and asserts that no two substances ever possibly touch; that infinite divisibility of concrete things is as endless as the space of the universe. This spirit and abstraction of thought would obliterate all tangibility belonging to vulgar reality.

I must say, we, amid such bewilderments of the reasoning powers, had best return to logical facts, and inductively to give creation its material existence; taking Genesis as written by Moses, under Revelation from on high, in the forty days and nights he was on Sinai, as physically true—not as a physical portraiture of the abstract ideal. Or as well have it said, Adam himself was an abstraction, existing nowhere. *Yet man bodily exists.* When and how, *at first?*

Geology can not overthrow Revelation, for who can say that matter in chaotic, shapeless fragments was not existent in a confused mass, long anterior to the time when the "Spirit of God moved on the face" of the *already existing* "waters?" Did not these waves cover solid ground, geologically marked? If each day were not a thousand years in the process of creation, here is a nut for skeptics to crack.

"J. E." is a disciple and advocate of Swedenborg's divinity, and evidently would set this man's "Arcana Celestia" on a par with, or above, the gospels of the Evangelists. How can we turn from a record predicted by such history as delineates the origin and lives of that extraordinary people, the Jews, attested by miracles and wonders, and prophesied even at the threshold of creation—and, finally, eventuating in Jesus Christ—how can we turn from all this mighty verification to the obscure glimmering of the writings of Swedenborg? Hath not Christ warned us against "false Christs," or pretenders to his power and sanctity, as well as cautioned us not to "take from or add" to the Bible—as see the closing verses of Revelation? Can we do this for Swedenborg or for the "Golden Bible of Mormonism," or for Mohammed, Buddha Brahma, or the "Indian Great Spirit?" Certainly never! The Bible is sufficient for us. By it we stand or fall. We take it unfigurative, where it does not intend figuration, but facts, entities as plain as Adam—as ourselves.

I respect the pretensions of the great man in so far only as they militate not with Bible facts. Against him I have none but well wishes. Yet we can not, where any is possible, admit interpolations, which, based on nothing but assertion and dreamy fancy, would serve to shake faith in the plain facts described in a book, which, to turn from and forget, or neglect, is the despair of a world. J. J. F.

THE DUKE OF ARGYLE, K.T., D.C.L.

WE publish this sketch of the head of the ancient clan Campbell, as much in response to a demand for its appearance by readers of the JOURNAL as in consideration of the valuable addition it makes to the contents of this number. As indicated in the portrait, the Duke of Argyle has a marked physiognomy, aside from the Scottish type of head. The bold brow, with the strong organs of Locality, Individuality, Weight, Size, Language, and Comparison, shows the close and critical analyst of natural phenomena, the methodical and accurate speaker and writer. The elevated forehead indicates a good knowledge of men and a warm interest in the welfare of humanity. There is a comprehensiveness in his survey of society and a depth of sympathy in his disposition which incline him to be kind, forbearing, and generous toward those whom the incident of birth has placed among the poor in purse and mental endowment. His top-head evinces a strong religious sense, with quite enough Firmness and Self-Esteem to impress upon his character and bearing a good degree of steadiness, decision, and dignity. As an aristocrat, in the better sense of the word, he is "to the manner born." From the portrait we infer that he has a warm social nature; and al-

though high-spirited and refined, he is not averse to joining a congenial company in the enjoyment of the good things of the table, and to having his share in the enjoyments of social life.

The noble Campbells of Argyle have for from the marriage of Archibald Campbell with the heiress of Lochow, in Argyleshire, in the reign of Malcolm Cunmore. Colin Campbell, the sixth in descent from Archibald, obtained celebrity as a warrior, was knighted by Alexander III. in 1280; and having enlarged his estate, he received the

as many as five centuries taken a foremost and active part in public affairs. The surname of Campbell is of great antiquity in Scotland. According to heraldry, it is derived from De Campo Bello, a Norman knight and follower of William the Conqueror. The rise of the Argyle family dates surname Moore, ever afterward borne by the heads of Argyle.

We find in the same line the name of Sir Duncan Campbell, who became a lord of the Scottish Parliament in 1445; and his grandson, Colin, was honored in the same manner. Colin was created Earl of Argyle in 1457 by

James III. Then we have a long succession of earls of more or less renown in Scottish history, until we come down to Archibald, the eighth Earl and first Marquis of Argyle. This illustrious nobleman, whose name is held in high veneration by his Scottish countrymen, was the leader of the Covenanters in the great civil war which rent Scotland to its very foundation. Of lofty patriotism, a staunch Presbyterian, sagacious and experienced as a statesman, he fell soon after the Restoration, a victim to political injustice. At the Cross of Edinburgh, May 27, 1661, he was beheaded. The son of this unfortunate gentleman, also a prominent figure in the movements of that troublous time, suffered in like manner by the hand of the executioner. He had been previously doomed to death on a false charge presented at the instance of the Duke of York, but managed to escape from prison to Holland, where he remained until 1685. His anxiety for the establishment of constitutional government in Great Britain led him to join the rash enterprise of Monmouth. Captured by the minions of despotism, he yielded up his life on the same spot where his father was executed. A well-known painting, in the House of Lords, represents this nobleman peacefully sleeping shortly before his summons to the block. He was a man of noble character and grand aims.

Archibald, the tenth Earl and successor of his unfortunate father, accompanied the Prince of Orange to England. To him the family estates, which had been confiscated, were restored. He was subsequently created the first Duke of Argyle. The sterling qualities and high moral tone of the second Duke of Argyle have been portrayed by Sir Walter Scott in his "Heart of Midlothian." In 1715 this gentleman rendered an important service to the Crown. He commanded the royal forces at the battle of Shropmoor, where he was wounded, yet succeeded in repressing the rebellion in Scotland. For many years he was intrusted with the management of the Scottish forces. He erected an infirmary, a magnificent structure, which subsequently became the seat of the family, and there collected one of the most valuable libraries in Great Britain.

The next Duke of Argyle, whom we may briefly notice in this rapid genealogical review, was the fifth. In 1766, while his father was still living, he was created a British peer. He was also distinguished by being made President of the Highland Society of Scotland, a society which has done much toward developing the agricultural resources of the Scottish country. The son of the fifth and uncle of the present Duke, succeeded his father in 1806, and is remembered with very kindly feelings in Argyleshire on account of his beneficence as a landlord.

George Douglas Campbell, now holding the title of Duke of Argyle, was born in Dumbartonshire, at the seat of his father, Lord John Campbell, on the 30th of April, 1823. Lord John had served as a soldier in Holland, under the Duke of York and Sir Ralph Abercrombie, and had also represented Argyleshire in Parliament from 1797 to 1820. He succeeded as the seventh Duke on the death of his brother, in 1839. He had two sons, one of whom died when the subject of this sketch was in his sixteenth year, and, consequently, the title of Marquis of Lorne, and the claim to the many dignities of the house of Argyle, were vested in the survivor.

The early years of the young nobleman were spent at his father's residence amid the beautiful and romantic scenery of the Clyde. His education was conducted in private by tutors. Presbyterianism is the hereditary religion of the Argyle family, and the young Marquis seems to have received a living impression of its rights and privileges from his instructors, for at the age of nineteen he published "A Letter to the Peers, from a Peer's Son," which urged, from considerations of constitutional law, the duty of immediate legislative interposition on behalf of the Church of Scotland. At that time a crisis had occurred in Scottish ecclesiastical affairs, brought about by the disruption of the Old Church. This pamphlet was followed, in the same year, 1842, by a letter addressed to Dr. Chalmers, treating on church affairs. The Marquis, however, was no follower of Dr. Chalmers. He took an independent position as a writer, and found no cause to leave the Church, in company with that eminent divine, or to imitate the example of his kinsman, the late Earl of Breadalbane, a representative of the younger branch of the

clan Campbell, who adhered to the secession party and became a member of the Free Church.

In 1844, the year following the division, the Marquis married Lady Elizabeth Georgiana Sutherland, eldest daughter of the second Duke of Sutherland, and on the death of his father, he succeeded, as the eighth Duke, to the family titles and estates of Argyle. Continuing to devote his attention to the subject of the Scottish Church, however, he in 1848 published an essay on the ecclesiastical history of Scotland. This work is frank and honest in tone, but being considered rather dogmatical at the time of its appearance, excited considerable attention. He took his seat in the House of Lords in May, 1848, and delivered his first speech in support of the second reading of the Religious Disabilities Bill.

In the start of his parliamentary career, he took sides with the Whig party, which was then in power, and advocating views in accordance with the hereditary politics of the family; and he has since continued to act with the liberal party. As a speaker, he is clear, forcible, and effective, and has rendered good service in the House of Lords. It was not until 1852, however, that the Duke entered upon office, then accepting the post of Lord Privy Seal. He became a cabinet minister at the age of thirty-three.

In the same year in which the Duke of Argyle joined Aberdeen's ministry, an unexpected honor was paid him, by his election as Chancellor of the first University of Scotland, that of St. Andrew. His election was by a unanimous vote of the *Senatus Academicus*, and was not due to any local influence exerted by the Argyle family, for it had now ceased to be connected with the establishment of Scotland, but was solely owing to his high personal character and growing intellectual eminence. We have already noticed the fact that the Duke was educated privately. In his address to the students of St. Andrew's, he alluded to this circumstance, and dwelt upon the advantages of university training.

By natural taste and capacity, the Duke has ever been disposed to scientific research and philosophic reasoning. His addresses before the British Association and elsewhere show especially his conversance with the facts and principles of geology. He was selected to preside over a meeting of the British Association, held at Glasgow, in 1855, and his address on that occasion was marked by great ability and by the kindest sympathy with scientific progress. In addition to the several posts of honor already noticed, the presidency of the Royal Society of Ecclesiastical History, of Edinburgh, was conferred upon him. In 1860, in his inaugural address, he gave a sketch of the career of the former President, the late Sir Thomas M. Brisbane, who had succeeded Sir Walter Scott in 1832. He said: "To be chosen President of the Society of which the two former Presidents were Sir Walter Scott and Sir Thomas Brisbane, is indeed an honor of which any Scotchman may well be proud. Sir Walter Scott's unbounded literary fame, and the personal affection in which he was held in Edinburgh, placed him in the front of all men who could be competitors for the chair of the Society, of which already he was the most illustrious member. Sir Thomas Brisbane was not only one of the most renowned soldiers of his day, but was possessed of high scientific attainments. In science, too, he was as wise as he was munificent. I can draw from the choice which you have lately made of a successor to such distinguished men, no other inference than that this Society places a very large and generous interpretation upon the qualifications requisite for its President, and that you are willing, occasionally, to connect the office with those pursuits of public life which, while they are unfavorable, I'm afraid, to any sustained scientific inquiry, are not incompatible with a sincere interest in the progress of science and a high appreciation of its value to mankind."

In 1868 he read a paper before the Geological Society, of which he was a fellow, on "The Physical Geography of Argyleshire." The object of this paper was to controvert certain theories which had found favor with younger geologists, and which had been more particularly published in a volume on the "Scenery of Scotland, viewed in connection with its Physical Geography." According to these theories, subterranean movements and commotions had comparatively

little to do with the formation of the Highlands; the mountains exist not because they have been upreared above the valleys, but because the valleys have been scooped out by the gradual action of ice, water, and atmospheric influences, thus leaving the mountains in relief. The Duke announced that his conviction was precisely the reverse of this; that, although the atmospheric agencies of waste had produced great modifications of the surface, the form of the hills and valleys had been determined by the action of subterranean forces, by upheavals, subsidences, and lateral pressures which have followed and broken the mass of strata into its present diverse shapes. In support of his position, his Grace reasoned with much force from geological facts as exhibited in his own Argyleshire, and showed an intimate familiarity with the details of the geology of that part of Scotland.

In 1853 he read before the Geological Society a description of the phenomena presented by the ridges which separated the valley of Loch Awe from the valley of Loch Fine. According to the Duke, "Every man of liberal education ought to be well grounded in those great principles of physical research which are daily leading to such complicated and magnificent results, both speculative and practical." His own mind is keenly alive to the bearing of those great questions which science has raised with reference to the first appearance and history of the human race. He has stated that the facts brought to light respecting the discovery of flint implements in the various localities, and other vestiges of human activity, indicate a high antiquity for man. The recent work of Darwin, on the "Origin of Species," in his opinion, means nothing less than the method of creation; and this is a subject so profoundly dark that no man can do more than walk carefully around its outer margin, noting here and there some facts more significant than others, which would seem to give hope of entrance into the obscurity within. The truth is, "Creation, of which we speak often, so easily, is a work on which we have no knowledge and can have no conception." Subsequently to this statement, the Duke has given, through periodicals, an expression to kindred thoughts. His work, the "Reign of Law," is well known. Since 1866 it has gone through several editions. In it the author seeks to show that the invariable order which science delights to contemplate, is by no means incompatible with the belief in an overruling and creative intelligence. The reign of law, according to him, is nothing but the reign of creative thought directed by creative knowledge, working under the control of creative power and in fulfillment of creative purposes. The author had intended to conclude his work with a chapter on "Law in Christian Theology." For the present, however, he has shrunk from entering upon a subject of such critical import and so inseparably connected with religious controversy. More recently the Duke issued a small volume entitled "Primeval Man." Some interesting papers on "Ionia" have also been collected, and published in a separate form. He is the proprietor of that island, so rich in historical associations, and consecrated by the devotional sentiment of the Christian Church. The possession of such property implies duties as well as rights, and it is to be hoped that due protection will be given to the national monuments of "Ionia" from the spoliation of roving barbarians in the form of tourists.

In 1864 a Royal Commission was appointed to inquire into the system of education in Scotland. Of this commission the Duke of Argyle was chosen chairman. The measure which he introduced into the House of Lords in the session of '69, was substantially the measure recommended by said commissioners. It unfortunately failed, and the question of Scottish education remains still unsatisfactorily disposed of. No man in Parliament more thoroughly understood the character and deficiencies of the system of education pursued in Scotland than the Duke. He has a keen and sympathetical appreciation of the views of John Knox, who, when before the Parliament of Scotland 300 years ago, insisted that it was the duty of the state to found a great system of national education.

The Duke is not a supporter of the policy of patronage in the church, as is evident from the fact that at the last General Assembly he intimated his readiness to make over to the church his rights of presentation to vacant livings. At the annual meeting, 1870,

of the Scottish corporation, held on St. Andrew's day, the Duke of Argyle presided. He appeared arrayed in full Highland costume, and in his speech referred to the advantages derived from the union of the two kingdoms.

He has an extensive friendship among men of literary and scientific eminence, many of whom have visited him at his seat at Inverary Castle. Prescott, the American historian, visited Inverary in 1850, in company with Sir Roderick Murchison and Professor Sedgwick. There these eminent men spent a few days of rare enjoyment. The Queen and the late Prince Consort, while on one of their visits to Scotland, were received and entertained at Inverary Castle by the Duke. To the Marquis of Lorne the Queen makes allusion in her leaves of Our Journal in Highlands. Perhaps it was at this time that the germs of that affection were born between the Princess Louise and the Marquis, which ripened into the subsequent attachment and marriage. The Marquis was born at the Stafford House, August 6, 1845, and was educated at Eton and at the Universities of St. Andrew's and Cambridge. Soon after the attainment of his majority he was elected a representative of Argyleshire in the House of Commons, and was again returned to that position at the last general election. A volume of travels, entitled "A Trip to the Tropics," was published by him in 1867. Lately, a subsequent edition was published. It exhibits fair literary powers, good observation, and independent thought. The announcement of the alliance of the heir of Argyle with a daughter of the royal family gave much general satisfaction in Scotland and the British possessions generally. Perhaps in America it met with much favor on account of the apparent introduction of principles of a democratic complexion into the very midst of royalty.

Returning again to the Duke of Argyle, and as a glimpse of his political views, it may be well to state, that after the resignation of Lord Aberdeen's ministry, he continued to sit in Cabinet as Lord Privy Seal under Lord Palmerston. In July, 1855, Lord Canning, having been appointed Governor-General to India, the Duke was removed to succeed him as Postmaster-General. He remained in this place until the beginning of 1858, when the success of Mr. Milner Gibson's motion compelled Lord Palmerston to retire. But when the latter resumed the reins of power, shortly afterward, viz., in June, 1859, the Duke of Argyle also resumed his former place as Lord Privy Seal, which he held till after Lord Palmerston's death, and until Earl Russel resigned, in January, 1866. Under the government of Gladstone, he held the position of Secretary of State for India, one of the most important portfolios in the gift of a nation.

The Duke has been created a Knight of the Thistle, and is a fellow of the Royal Society and trustee of the British Museum. In 1854 he was chosen Lord Rector of the University of Glasgow. In 1862 the University of Cambridge conferred the degree of LL.D., and last year Oxford bestowed that of D.C.L. The following pen-portrait of the Duke of Argyle, which must conclude our somewhat lengthy notice, is from the author of "The Gladstone Government," and which any one who has observed that nobleman's bearing and manner of speaking in the House of Lords, will be able to confirm:

"As a debater, he has distinguished himself in the Parliamentary arena, but almost exclusively as a debater. His manner when speaking, his very appearance, the tone of his oratory are all of them eminently characteristic. When he strides to the table of the House of Lords, his shoulders thrown back, his head erect, his chin in the air, the skirts of his broadcloth coat, one could almost fancy, changed into the Campbell tartan; the bright orange-colored hair feathering up from his forehead, is as an eagle plume in a Highland bonnet; the free, bold gestures are as the brandishing of the claymore; in the very ring of his strident voice there is the clang of the pibroch; it is Macullum More who is there before us rather than George Douglas, the Duke of Argyle. The sphere of the House is his native heather, and his name and fame are those of the Highland chieftain of the great clan Campbell."

A PECULIAR MAN.—Mr. Z. Pratt, of Prattsville, New York, was, during his life, an exceedingly eccentric character. Not that he married five wives, the last one when he was seventy-five years old, and the bride twenty;

that may have been rash, but could hardly be called eccentric. It was the way he pottered about his farm, sculpturing busts on high rocks, and turning portions of his land into cemeteries for his favorite horses and dogs, that constitutes his claim upon our attention. He cut, among other works of art, his own bust and that of his son in a projecting rock dominating the little village of Prattsville. To reach these sculptures he made a winding path, ascending five hundred feet, and furnished at convenient intervals with snug nooks, in which were placed sofas and chairs for the weary. Mr. Pratt had commenced cutting his tomb in the rock below these busts when he died. The way up is enlivened by such inscriptions as these: "23,000 pounds of butter made from 100 cows in 1863, on the farm opposite;" "1,000,000 sides of sole leather tanned with hemlock bark in twenty years. by Z. Pratt;" "20 acres of land donated to the town of Prattsville, by Z. Pratt;" also other inscriptions, one showing him to have been a member of Congress in 1844. On a terrace below is a mound, in front of which is a tombstone, with the following inscriptions: "The following were the favorites of over 1,000 horses, owned and worn out in the service of Z. Pratt: Bob, 24 years, sorrel; Boyne, 18 years, bay; Prince, 30 years, gray." "Dogs—Carlo, 12; Rife, 11; Mingo, 10."—*Newark Daily Journal.*

[We knew him well. He was a "self-made man;" not highly educated, but full of energy, enterprise, and push. He was temperate in his habits; very industrious, and *succeeded* in business. He was in no sense a bad man, but was foolish only in vanity. He was a fair type of the self-helpful, self-relying, go-a-head new country American, and would make his mark anywhere. Had he been more highly cultured, his aspirations would have been *above* that love for notoriety which was so conspicuous in his character.]

THE ORIGIN OF METALLIFEROUS DEPOSITS.

[An Address by THOMAS S. HUNT, F.R.S., before the Polytechnic Association of the American Institute of New York.]

THERE are about sixty bodies which chemists call elements; the simplest forms of matter which they have been able to extract from the rocky crust of our earth, its waters, and its atmosphere. These substances are distributed in very unequal quantities, and in very different manners. As regards the frequency of these elements in nature, neglecting for the present those which constitute air and water, and confining ourselves to the solid matters of the earth's crust, there are a few which are exceedingly abundant, making up nine-tenths, if not ninety-five-hundredths, of the rocks so far as known to us. The bases, of which silica, alumina, lime, magnesia, potash, and soda are oxyds, are very common, and occur almost everywhere. There are, however, other elements which are much rarer, being found in comparatively small quantities. Many of these rarer elements are, however, of great importance in the economy of nature. Such are the common metals and other substances used in the arts, which occur in nature in quantities relatively very minute, but which have been collected by various agencies, and thus made available for the wants of man. It is chiefly of the well-known metals, iron, copper, silver, and gold that I propose to speak to-night; but there are two other elements, not classed among the metals, which I shall notice for the reason that their history is extremely important, and will, moreover, enable us to comprehend more clearly some points in that of the metals themselves. I speak of phosphorus and iodine.

You all know the essential part which the former of these, combined as phosphate of lime, plays in the animal economy, in the formation of bones; and how plants require for their proper growth and development a certain amount of phosphorus. Ordinary soils contain only a few thousandths of this element, yet there are agencies at work in nature which gather this diffused phosphorus together in beds of mineral phosphates and in veins of crystalline apatite, which are now sought to enrich impoverished soils. Iodine, an element of great value in medicine and in the art of photography, is widely distributed, but still rarer than phosphorus, yet it abounds in certain mineral waters, and is, moreover, accumulated in marine plants. These extract it from the waters of the sea, where iodine exists in such minute quantities as almost to elude our chemical tests.

There are probably no perfect separations in nature. We can not, without great precautions, get any chemical element in a state of absolute purity, and we have reason to believe that even the rarest elements are everywhere diffused in infinitesimal quantities. The spec-

troscope, which we have lately learned to apply to the investigation alike of the chemistry of our own earth and that of other worlds, once supposed to be beyond the chemist's ken, not only demonstrates the very wide diffusion of various chemical elements here on earth, but shows us that very many of them exist in the sun. If we accept, as most of us are now inclined to do, the nebular hypothesis, and admit that our earth was once, like the sun of to-day, an intensely heated vaporous mass; that it is, in fact, a cooled and condensed portion of that once great nebula of which the sun is also a part—we might expect to find all the elements now discovered in the sun distributed throughout this consolidated globe. We may speculate about the condensation of some of these before others, and their consequent accumulation in the inner parts of the earth, but the fact that we have all the elements of the solar envelope (together with many more) in the exterior portions of our planet, shows that there was, at least, but a very partial concentration and separation of these elements during the period of cooling and condensation. The superficial crust of the earth, from which all the rocks and minerals which we know have been generated, must have contained, diffused through it, from the earliest time, all the elements which we now meet with in our study of the earth, whether still diffused or accumulated, as we often find the rarer elements, in particular veins or beds.

The question now before us is, how have these elements thus been brought together, and why is it that they are not all still widely and universally diffused? Why are the compounds of iron in beds by themselves, copper, silver, and gold gathered together in veins, and iodine concentrated in a few ores and certain mineral waters? That we may the better discern the direction in which we are to look for the solution of this problem, let us premise that all of these elements, in some of their combinations, are more or less soluble in water. There are, in fact, no such things in nature as absolutely insoluble bodies, but all, under certain conditions, are capable of being taken up by water, and again deposited from it. The alchemists sought in vain for a universal solvent, but we now know that water, aided in some cases by heat, pressure, and the presence of certain widely distributed substances, such as carbonic acid and alkaline carbonates and sulphides, will dissolve the most insoluble bodies; so that it may after all be looked upon as the long-sought-for alkahest or universal menstruum.

Let us now compare the waters of rivers, seas, and subterranean springs, thus impregnated with various chemical elements, with the blood which circulates through our own bodies. The analysis of the blood shows it to contain albuminoids which go to form muscle, fat for the adipose tissues, phosphate of lime for the bones, fluorids for the enamel of the teeth, sulphur which enters largely into the composition of the hair and nails, soda which accumulates in the bile, and potash, which abounds in the flesh-fluid. All of these are dissolved in the blood, and the great problem for the chemical physiologist is to determine how the living organism gathers them from the complex fluid, depositing them here and there, and giving to each part its proper material. This selection is generally ascribed to a certain vital force, peculiar to the living body. I shall not here discuss the vexed question of the nature of the force which determines the assimilation from the blood of these various matters for the needs of the animal organism, further than to say that modern investigations tend to show that it is only a subtler kind of chemistry, and that the study of the nature and relation of colloids and crystalloids, and of the phenomena of chemical diffusion, promises to subordinate all these obscure physiological processes to chemical and physical laws.

Let us now see how far the comparison which we have made between the earth and an animal organism will help us to understand the problem of the distribution of minerals in nature; how far water, the universal solvent, acting in accordance with known chemical and physical laws, will cause the separation of the mixed elements of the earth's crust, and their accumulation in veins and beds in the rocks. The subject is one of great importance to the geologist, who has to consider the genesis of the various rocks and ore-deposits, and the relations, which we are only beginning to understand, between certain metals and particular rocks, and between certain classes of ores and peculiar mineralogical and geological conditions. It is at the same time a vast one, and I can to-night only give you a few illustrations of the chemistry of the earth's crust, and of the laws of the terrestrial circulation, which I have compared to that of the blood distributing throughout the animal frame the elements necessary for its growth. The analogy is not altogether new, since a great French geologist, Elie de Beaumont, has already spoken of a terrestrial circulation in regard to certain elements in the earth's crust; though he

has not, so far as I am aware, carried it out to the extent which I propose to-night in my attempt to explain some of the laws which have presided over the distribution of metals in the earth.

The chemist in his laboratory takes advantage of changes of temperature, and of the action of various solvents and precipitants, to separate, in the humid way, one element from another; but to these agencies, in the economy of nature, are added others which we have not yet succeeded in imitating, and which are effected only in growing animals and plants. I repeat it, I do not wish to say that these latter processes are different in kind from those which we command in our laboratories, but rather that these organisms control a far finer and more delicate chemical and physical apparatus than we have yet invented. Plants have the power of selecting from the media in which they live the elements necessary for their support. The growing oak and the grass alike assimilate from the air and waters the carbon, hydrogen, nitrogen, and oxygen which build up their tissues, and at the same time take from the soil a portion of phosphorus, which, though minute, is in both cases essential to the vegetable growth. The acorn of the oak and the grass alike become the food of animals, and the gathered phosphates pass into their bones, which are nearly pure phosphate of lime. In like manner the phosphates from organic waste and decay find their way to the sea, and through the agency of marine vegetation become at last the bony skeletons of fishes. These are, in turn, the prey of carnivorous birds, whose exuviæ form on tropical islands beds of phosphatic guano. A history not dissimilar will explain the origin of beds of coprolites and other deposits of mineral phosphates.

But again, these plants or these animals may perish in the sea and be buried in its ooze. The phosphates which they have gathered are not lost, but become fixed in an insoluble form in the clayey matter; and when in the revolutions of ages, these sea-muds, hardened to rock, become dry land, and crumble again to soil, the phosphates are there found ready for the wants of vegetation.

Most of what I have said of phosphates applies equally to the salts of potash, which are not less necessary to the growing plant. From the operation of these laws it results that neither of these elements is found in large quantities in the ocean. This great receptacle of the drainage from the land contains still smaller quantities of iodine; in fact, the traces of this element present in sea water can scarcely be detected by our most delicate tests. Yet marine plants have the power of separating this iodine, and accumulating it in their tissues, so that the ashes of these plants are not only rich in phosphates and in potash-salts, but contain so much iodine that our supplies of this precious element are almost wholly derived from this source, and that the gathering and burning of sea-weed for the extraction of iodine is in some regions an important industry. When this marine vegetation decays, the iodine which it contains, appears, like the potash and phosphates, to pass into combinations with metals, earths, or earthy phosphates, which retain it in an insoluble state, and in certain cases yield it to percolating saline solutions, which thus give rise to springs rich in iodine.

In all of these processes the action of organic life is direct and assimilative, but there are others in which its agency, although indirect, is not less important. I can hardly conceive of an accumulation of iron, copper, lead, silver, or gold, in the production of which animal or vegetable life has not either directly or indirectly been necessary, and I shall begin to explain my meaning by the case of iron. This, you are aware, is one of the most widely diffused elements in nature; all soils, all growing plants contain it; and it is a necessary element in our blood. Clays and loams contain, however, at best, two or three hundredths of the metal, but so mixed with other matters that we could never make it available for the wants of this iron age of ours. How does it happen that we also find it gathered together in great beds of ore, which furnish an abundant supply of the metal? The chemist finds that the iron, as diffused in the rocks, exists chiefly in combination with oxygen, with which it forms two principal compounds: the first or protoxyd, which is readily soluble in water impregnated with carbonic acid or other feeble acids, and the second or peroxyd, which is insoluble in the same liquids. I do not here speak of the magnetic oxyd, which may be looked upon as a compound of the other two, neutral and indifferent to most natural chemical agencies. The combinations of the first oxyd are either colorless or bluish or greenish in tint, while the peroxyd is reddish-brown, and is the substance known as iron-rust. Ordinary brick-clays are bluish in color, and contain combined iron in the state of protoxyd, but when burned in a kiln they become reddish, because this oxyd absorbs from the air a

further proportion of oxygen, and is converted into peroxyd. But there are clays which are white when burned, and are much prized for this reason. Many of these were once ferruginous clays, which have lost their iron by a process everywhere going on around us. If we dig a ditch in a moist soil which is covered with turf or with decaying vegetation, we may observe that the stagnant water which collects at the bottom soon becomes coated with a shining, irridescent scum, which looks somewhat like oil, but is really a compound of peroxyd of iron. The water as it oozes from the soil is colorless, but has an inky taste from dissolved protoxyd of iron. When exposed to the air, however, this absorbs oxygen, and peroxyd is formed, which is no longer soluble, but separates as a film on the surface of the water, and finally sinks to the bottom as a reddish ochre, which is chiefly peroxyd of iron; or, under somewhat different conditions, becomes aggregated as a massive iron ore. A process identical in kind with this has been at work at the earth's surface ever since there were decaying organic matters, dissolving the iron from the porous rocks, clays, and sands, and gathering it together in beds of iron-ore or iron-ochre. It is not necessary that these rocks and soils should contain the iron in the state of protoxyd, since these organic products (which are themselves dissolved in the water) are able to remove a portion of the oxygen from the insoluble peroxyd, and convert it into the soluble protoxyd of iron, being themselves in part oxydized and converted into carbonic acid in the process.

We find in rock-formations of very different ages beds of sediments which have been deprived of iron by organic agencies, and near them will generally be found the accumulated iron. Go into any coal region, and you will see evidences that this process was at work when the coal-beds were forming. The soil in which the coal-plants grew has been deprived of its iron, and when burned turns white, as do most of the slaty beds from the coal-rocks. It is this ancient soil which constitutes the so-called fire-clays, prized for making fire-bricks, which, from the absence of both iron and alkalies, are very infusible. Interstratified with these we often find, in the form of iron-stone, the separated metal; and thus from the same series of rocks may be obtained the fuel, the ore, and the fire-clay.

From what I have said it will be understood that great deposits of iron ore generally occur in the shape of beds; although waters holding the compounds of iron in solution have, in some cases, deposited them in fissures or openings in the rocks, thus forming true veins of ore, of which we shall speak further on. I wish now to insist upon the property which dead and decaying organic matters possess of reducing to protoxyd, and rendering soluble, the insoluble peroxyd of iron diffused through the rocks; and reciprocally the power which this peroxyd has of oxydizing and consuming these same organic matters, which are thereby finally converted into carbonic acid and water. This last action, let me say in passing, is illustrated by the destructive action of rusting iron fastenings on moist wood, and the effect of iron-stains in impairing the strength of linen fiber.

We see in the coal formation that the vegetable matter necessary for the production of the iron-ore beds was not wanting, but the question has been asked me, where are the evidences of the organic material which was required to produce the great beds of iron ore found in the ancient crystalline rocks? I answer that the organic matter was, in most cases, entirely consumed in producing these great results; and that it was the large proportion of iron diffused in the soils and waters of these early times, which not only rendered possible the accumulation of such great beds of ore, but oxydized and destroyed the organic matters which in later ages appear in coals, lignites, pyroschists, and bitumens. Some of the carbon of these early times is, however, still preserved in the form of graphite, and it would be possible to calculate how much carbonaceous material was consumed in the formation of the great iron-ore beds of the older rocks, and to determine of how much coal or lignite they are the equivalents.

In the course of ages, however, as a large proportion of the once diffused iron-oxyd has become segregated in the form of beds of ore, and thus removed from the terrestrial circulation, the conditions have grown more favorable for the preservation of the carbonaceous products of vegetable life. The crystalline magnetic and specular oxyds, which constitute a large proportion of the ores of this metal, are almost or altogether indifferent to the action of organic matter. When, however, these ores are reduced in our furnaces, and the resulting metal is exposed to the oxydizing action of a moist atmosphere, it is again converted into iron-rust, which is soluble in water holding organic matters, and may thus be made to enter once more into the terrestrial circulation.

There is another form in which iron is frequently concentrated in nature, that of sulphid, and most frequently as the bisulphid, known as iron-pyrites. This substance is found both in the oldest and the newest rocks, and, like the oxyd of iron, is even to-day forming in certain waters and in beds of mud and silt, where it sometimes takes a beautifully crystalline shape. What are the conditions in which the sulphid of iron is formed and deposited, instead of the oxyd or carbonate of iron? Its production depends, like these, on decaying organic matters. The sulphates of lime and magnesia, which abound in sea-water, and in many other natural waters, when exposed to the action of decaying plants or animals, out of contact of air, are, like peroxyd of iron, deoxydized, and are thereby converted into soluble sulphids; from which, if carbonic acid be present, sulphuretted hydrogen gas is set free. Such soluble sulphids, or sulphuretted hydrogen, are the reagents constantly employed in our laboratories to convert the soluble compounds of many of the common metals, such as iron, zinc, lead, copper, and silver into sulphids, which are insoluble in water and in many acids, and are thus conveniently separated from a great many other bodies. Now, when in a water holding iron-oxyd, sulphates are also present, the action of organic matter, deoxydizing the latter, furnishes the reagent necessary to convert the iron into a sulphid; which in some conditions, not well understood, contains two equivalents of sulphur for one of iron, and constitutes iron-pyrites. I may here say that I have found that the unstable protosulphid, which would naturally be first formed, may, under the influence of a persalt of iron, lose one-half of its combined iron; and that from this reaction a stable bisulphid results. This subject of the origin of iron-pyrites is still under investigation.

The reducing action of organic matters upon soluble sulphates is well seen in the sulphuretted hydrogen which is evolved from the stagnant sea-water in the hold of a ship, and which coats silver exposed to it with a black film of sulphid of silver, and for the same reason discolors white-lead paint. The presence of sulphur in the exhalations from some other decaying matters is well known, and in all these cases a soluble compound of iron will act as a disinfectant, partly by fixing the sulphur as an insoluble sulphid. Silver coins brought from the ancient wreck of a treasure-ship in the Spanish Main were found to be deeply incrusted with sulphid of silver, formed in the ocean's depths by the process just explained, which is one that must go on wherever organic matters and sea-water are present, and atmospheric oxygen excluded.

The chemical history of iron is peculiar; since it requires reducing matters to bring it into solution, and since it may be precipitated alike by oxydation, and by farther reduction, provided sulphates are present. The metals copper, lead, and silver, on the contrary, form compounds more or less soluble in water, from which they are not precipitated by oxygen, but only by reducing agents, which may separate them in some cases in a metallic state, but more frequently as sulphids. The solubility of the salts and oxyds of these metals in water is such that they are found in many mineral springs, in the waters that flow from certain mines, and in the ocean itself, the waters of which have been found to contain copper, silver, and lead. Why, then, do not these metals accumulate in the sea, as the salts of soda have done during long ages? The direct agency of organic life comes again into play, precisely as in the case of phosphorus, iodine, and potash. Marine plants, which absorb these from the sea-water, take up at the same time the metals just named, traces of all of which are found in the ashes of sea-weeds. Copper, moreover, is met with in notable quantities in the blood of many marine molluscous animals, to which it may be as necessary as iron is to our own bodies. Indeed, the blood of man, and of the higher animals, appears never to be without traces of copper as well as iron.

In the open ocean the waters are constantly aerated, so that soluble sulphids are never formed, and the only way in which these dissolved metals can be removed and converted into sulphids is by fixing them in organisms, either vegetable or animal. These, by their decay in the mud of the bottom, or the lagoons of the shore, generate the sulphids which fix their contained metals in an insoluble form, and thus remove them from the terrestrial circulation.

It is not, however, in all cases necessary to invoke the direct action of organisms to separate from water the dissolved metals. It often happens that the waters containing these, instead of finding their way to the ocean, flow into lakes or inclosed basins, as in the case of the drainage-waters of an English copper-mine, which have impregnated the turf of a neighboring bog to such an extent that its ashes have been found a profitable source of copper.

Under certain conditions, not yet well understood, this metal is precipitated by organic matters in the metallic state, but if sulphates are present, a sulphid is formed. Thus, in the slates of Mansfeld, in Germany, sulphid of copper is found incrusting the remains of fishes, and in the sandstones of New Jersey we find it penetrating the stems of ancient trees. I have in my possession a portion of a small trunk taken from the mud of a spring in Ontario, in which the yet undecayed wood of the center is seen to be incrusted by hard metallic iron-pyrites. In like manner the old trees of the New Jersey sandstone became incrusted with copper-sulphid, which, as decay went on, in great part replaced the woody tissue. Similar deposits of sulphids of copper and of iron often took place in basins where the organic matter was present in such a condition or in such quantity as to be entirely decomposed, and to leave no trace of its form, unlike the examples just mentioned. In this way have been formed fahl-bands, and beds of pyrites and other ores.

The fact that such deposits are associated with silver and with gold leads to the conclusion that these metals have obeyed the same laws as iron and copper. It is known that both persalts of iron and soluble sulphids have the power of rendering gold soluble, and its subsequent deposition in the metallic state is then easily understood.

I have endeavored by a few illustrations to show you by what processes some of the more common metals are dissolved and again separated from their solution in insoluble forms. It now remains to say somewhat of the geological relations of ore-deposits, which are naturally divided into two classes; the first including those which occur in beds, and have been formed contemporaneously with the inclosing earthy sediments. Such are the beds of iron ores, which often hold imbedded shells and other organic remains, and the copper-bearing strata already mentioned, in which the metal must have been deposited during the decay of the animal or plant which it incrusts or replaces. But there are other ore-deposits evidently of more recent formation than the rocky strata which inclose them, which have resulted from a process of infiltration, filling up fissures with the ore, or diffusing it irregularly through the rock. It is not always easy to distinguish between the two classes of deposits. Thus a fissure may in some cases be formed and filled between two sundered beds, from which may result a vein that may be mistaken for an interposed stratum. Again, a bed may be so porous that infiltrating waters may diffuse through it a metallic ore, or a metal, in such a manner as to leave it doubtful whether the process was contemporaneous with the disposition of the bed, or posterior to it. But I wish to speak of deposits which are evidently posterior, and occupy fissures in previously-formed strata, constituting true veins. Whether produced by the great movements of the earth's crust, or by the local contraction of the rocks (and both of these causes have in different cases been in operation), such fissures sometimes extend to great lengths and depths; their arrangement and dimensions depending very much on the texture of the rocks which have been subjected to fracture. When a bone in our bodies is broken, nature goes to work to repair the fractured part, and gradually brings to it bony matter, which fills up the little interval, and at length makes the severed parts one again. So when there are fractures in the earth's crust, the circulating waters deposit in the openings mineral matters, which unite the broken portions, and thus make whole again the shattered rocks. Vein-stones are thus formed, and are the work of nature's conservative surgery.

Water, as we have seen, is a universal solvent, and the matters which it may bring and deposit in the fissures of the earth are very various. There is scarcely a spar or an ore to be met with in the stratified rocks that is not also found in some of these vein-stones, which are often very heterogeneous in composition. In certain veins we find the elements of limestone or of granite, and these often include the gems, such as amethyst, topaz, garnet, hyacinth, emerald, and sapphire; while others abound in native metals or in metallic oxyds or sulphids. The nature of the materials thus deposited depends very much on conditions of temperature and of pressure, which affect the solvent power of the liquid, and still more upon the nature of the adjacent rocks and of the waters permeating them. The chemistry of mineral veins is very complicated. Many of these fissures penetrate to a depth of thousands of feet of the earth's crust, and along the channels thus opened the ascending heated subterranean waters may receive in their course various contributions from the overlying strata. From these additions, and from the diminished solubility resulting from a decrease of pressure, deposits of different minerals are formed upon the walls, and the slow changes in composition are often represented by successive layers

of unlike substances. The power of these waters to dissolve and bring from the lower strata their contained metals and spars is probably due in great part to the alkaline carbonates and sulphids which these waters often hold in solution; but the chemical history of the deposition of the ores of iron, lead, copper, silver, tin, and gold, which are found in these veins, demands a lengthened study, and would furnish not less beautiful examples of nature's chemistry than those I have already laid before you.

The process of filling veins has been going on from the earliest ages; we know of some which were formed before the Cambrian rocks were deposited, while others are still forming, as the observations of Phillips have shown us in Nevada, where hot springs rise to the surface and deposit silica, with metallic ores, which incrusts the walls of the fissure. These thermal waters show that the agencies which in past times gave rise to the rich mineral deposits of our western regions, are still at work there.

Let us now consider the beneficent results of the process of vein-making. The precious metals, such as silver, are so sparsely distributed, that even the beds rich in the products of decaying sea-weed, which we have supposed to be deposited from the ocean, would contain too little silver to be profitably extracted. But in the course of ages these sediments, deeply buried, are lixiviated by permeating solutions, which dissolve the silver diffused through a vast mass of rock, and subsequently deposit it in some fissure, it may be in strata far above, as a rich silver ore. This is nature's process of concentration.

We learn from the history which we have just sketched the important conclusion, that amid all the changes of the face of the globe the economy of nature has remained the same. We are apt, in explaining the appearances of the earth's crust, to refer the formation of ore-beds and veins to some distant and remote period, when conditions very unlike the present prevailed, when great convulsions took place, and mysterious forces were at work. Yet the same chemical and physical laws are now, as then, at work; in one part dissolving the iron from the sediments and forming ore-beds, in another separating the rarer metals from the ocean's waters; while in still other regions the consolidated and buried sediments are permeated by heated waters, to which they give up their metallic matters, to be subsequently deposited in veins. These forces are always in operation, re-arranging the chaotic admixture of elements which results from the constant change and decay around us. The laws which the First Great Cause imposed upon this material universe on the first day are still irresistibly at work fashioning its present order. One great design and purpose is seen to bind in necessary harmony the operations of the mineral with those of the vegetable and animal worlds, and to make all of these contribute to that terrestrial circulation which maintains the life of our mother earth.

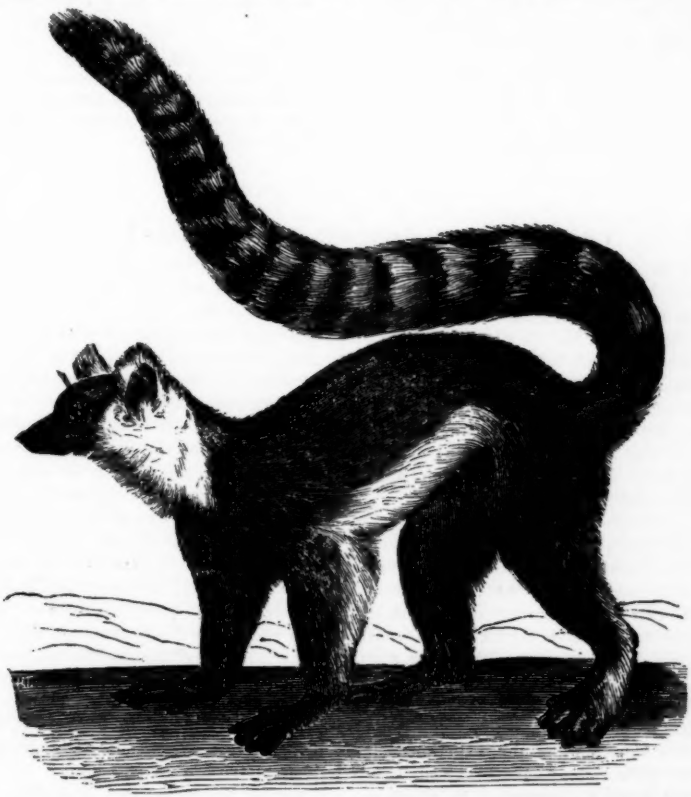
While the phenomena of the material world have been looked upon as chemical and physical, it has been customary to speak of those of the organic world as vital. The tendency of modern investigation is, however, to regard the processes of animal and vegetable growth as themselves purely chemical and physical. That this is to a great extent true must be admitted, though I am not prepared to concede that we have in chemical and physical processes the whole secret of organic life. Still we are, in many respects, approximating the phenomena of the organic world to those of the mineral kingdom; and we at the same time learn that these so far interact and depend upon each other that we begin to see a certain truth underlying the notion of those old philosophers who extended to the mineral world the notion of a vital force; which led them to speak of the earth as a great living organism, and to look upon the various changes in its air, its waters, and its rocky depths, as processes belonging to the life of our planet.

[Since this lecture was delivered, I have seen the results of the researches of Sonstadt on the iodine in sea-water, which appear in the *Chemical News* for April 26, May 17, and May 24. According to him this element exists in sea-water, under ordinary conditions, as iodate of calcium, to the amount of about one part of the iodate in 250,000 parts of the water. This compound, by decaying organic matter (and by most other reducing agents), is changed to iodid, from which, apparently by the action of carbonic acid, iodine is set free, and may be separated by agitating the water with bisulphid of carbon. The iodine thus liberated from sea-water by the action of dead organic matters, however, slowly decomposes water in presence of carbonate of calcium, and is reconverted into iodate, the oxygen of the air probably intervening to complete the oxydation, since, according to Sonstadt, iodids are readily converted into iodates under these conditions. He finds that the insolubility of the iodids of

silver and of copper is so great that by the use of salts of these metals iodine may be separated from sea-water, without concentration, provided the iodate of calcium has first been reduced to iodid. By this property of iodine and its compounds to oxydize and be oxydized in turn, Sonstadt supposes them to perform the important function of consuming the products of organic decay, and so maintaining the salubrity of the ocean's waters. Their action would thus be very similar to that of the oxyds of iron, as explained in the present lecture.]

THE LEMUR-MACOCO.

THE family of the Lemuridæ is allied to the monkey, and in most particulars closely resembles it. The specific difference which has given naturalists their warrant for classifying the lemur by itself, consists mainly in the formation of its extremities, the four thumbs being well developed and *opposed* to the fingers, and the first hind finger is armed with a raised and pointed claw, all the other nails being flat (Geoffrey).



The general form of the lemurs is slender and elongated, the muzzle pointed, the eyes large, the ears small, the hind limbs longer and larger than the fore limbs. We find in some books these animals have been described as differing from all other *mammalia* in the circumstance of their upper canine teeth locking outside or of before the lower; but the fact appears to be that their true lower canines have heretofore been mistaken for additional incisors, which they resemble in general aspect and direction, while the succeeding tooth,

which, from its size and appearance, has been supposed to be the lower canine, is, in reality, the first false molar. In the genus Tarsius, however, the true canine assumes more of its ordinary form; and the same is observable of the first false molar in *Microcebus* (Cuvier).

These animals are natives of the warm regions of the Old World; in fact, they are only found now on the island of Madagascar, where they appear to replace the monkey tribe, which, it is said, does not exist there. They live in the forests, subsisting chiefly on fruits, climbing the trees with all the agility of monkeys. The name *Lemur*, of Linnæus, from the Latin, signifying a ghost, has reference to their rapid and peculiarly noiseless movements.

Their species are very numerous, thirteen of which have been definitely ascertained. One of the largest of these is the Macoco, of Buffon, or the Ring-tailed Lemur, a representation of which is furnished by the engraving. In size, it is about that of a large cat. The upper part of the body is of a fine gray color, which assumes a reddish hue on the back and shoulders; on the superior part of the head and of the neck, the color is black, as is also the case with the parts surrounding the eyes and the muzzle. All the other parts of the head, ears, the inner side of the limbs, the under part of the neck, the chest, and abdomen are white; while the tail is alternately colored throughout its length with white and black rings, of which there are upward of thirty. The outline and general characteristics of this species of the lemur are more delicate and beautiful. The macoco is said to be the most easily tamed of the lemur family, and exhibits the most intelligence, although the monkey is much superior in this last respect to it. When pleased, according to Linnæus, the macoco makes a low, rumbling noise, similar to the purr of a cat; but the ordinary voice of these animals is a low grunt, often breaking forth into a hoarse, abrupt roar, which has a startling effect, especially when many thus roar in concert. The lemur is a nocturnal animal, sleeping by day perched on a bough, in a ball-like figure.

THE NEW THEORY OF THE SUN'S HEAT.

THE October number of the PHRENOLOGICAL JOURNAL contains an article by Mr. Chapman in which is propounded a new theory of the source of the sun's heat, or, rather, an old theory revived, for the well-known fact that the atmosphere gets cooler as we ascend long ago gave rise to the impression that the heating power of the sun's rays was due to the action of the atmosphere. As this view has been entirely abandoned as untenable, it may be well to glance at the facts in the case.

It is a curious circumstance that, owing to other agencies with which they are complicated, the apparent results of many experiments are in exact opposition to the truth. Thus, if we take two equal cylinders of bismuth and iron, coat one end of each with wax and place the other end in contact with a hot metal plate, it will be found that the wax on the bismuth will melt first, thus apparently demonstrating that bismuth is a better conductor of heat than iron. But in this experiment the property known as specific heat comes into play, and when we neutralize its effects we find that iron conducts six times as freely as bismuth, thus entirely reversing the decision reached in the former case. Several striking instances of this are to be found in the paper of Mr. Chapman. Thus the opinion that the moon is "cold" arose from a partial view of the facts in the case. Every scientist now knows that the moon emits heat as well as light, but this very emission of heat occasionally gives rise to a chilling effect, a paradox of the most startling kind. Let us explain it. It has been found that some bodies transmit heat very readily, while others stop it effectually, and, strange to say, those bodies that are transparent to light are not always transparent to heat, if we may be allowed the expression. Thus a sheet of glass permits the cheerful light of the fire to pass through, but it effectually shuts off the heat. Rock-salt allows heat to pass very freely, so freely that it has been called the glass of heat. Moreover, some heat-rays pass more freely than others; thus the direct heat-rays of the sun pass readily through glass, but after being reflected from terrestrial bodies they lose this power. Hence a closed green-house, exposed to the rays of the sun, becomes very hot, because the heat-rays pass freely in, but can not pass back.

Among the bodies that powerfully shut off the heat-rays is watery vapor in a partially condensed form, but when in the state of a perfect gas, that is, when it is no longer partially condensed as in the form of cloud, water allows the heat to pass. When, therefore, the

moon's rays fall upon a cloudy atmosphere, the heat is absorbed by the watery vapor which is then rendered transparent, and a path is opened for the passage of heat between the earth and the moon. But as the earth and the bodies on it are constantly radiating heat, this increase of transparency allows the heat to pass from the earth more freely than it would otherwise do; and as the earth radiates more heat than it receives from the moon, the moon's rays, by opening up a passage for this heat, actually exert a chilling effect. But it does not follow that the moon does not radiate heat, and carefully conducted experiments show that it does do so.

The great fact upon which Mr. Chapman depends is that "as we pass upward through the atmosphere toward the sun, its rays become less and less powerful." Unfortunately for his theory this is not the case, and the apparent proof which he adduces is simply the effect of other agencies. The power of the sun's rays on the tops of high mountains has been very carefully investigated by several observers. Piazzi Smith, during his residence on the Peak of Teneriffe, at an elevation of 10,000 feet above the level of the sea, found that th sun's rays were competent to raise the mercury in the thermometer to nearly the boiling point of water, and the direct rays beating upon the person were almost unendurable. Tyndall also tells us that he "never on any occasion suffered so much from solar heat as in descending from the Corridor to the Grand Plateau of Mont Blanc on August 13, 1857; though hip deep in snow at the time, the sun blazed against me with unendurable power. Immersion in the shadow of the Dome du Gouté at once changed my feelings, for here the air was at a freezing temperature." It is not therefore for want of power in the sun's rays, but from other physical causes, which it would take too long to explain, that we find snow on the tops of high mountains. The higher we ascend the more powerful do the sun's rays become, and, to reverse Mr. Chapman's statement, it is certain that the warmth of the sun's rays does depend upon solar heat, and not upon their friction with the atoms of the atmosphere.

JOHN PHIN.

MIGRATION OF SQUIRRELS.—The Memphis *Avalanche* of the 23d Sept. says: For the past six or eight weeks great numbers of squirrels have been noticed immigrating from Arkansas to Tennessee. At the foot of Island 25, as far down as the head of 26, a distance of some twenty-five miles, where the Mississippi river is about three-fourths of a mile in width, the squirrels have been in the habit of swimming the river, and during the time named great droves are known to have crossed. Whether the mast is short in Arkansas this season, and starvation is driving them over the wide Mississippi in search of better nut groves, or whether it is merely a freak of fancy on the part of the squirrel tribe, is something that puzzles the river folks.

ANOTHER PUZZLE.

A DUBLIN chambermaid is said to have put twelve travelers into eleven bedrooms, and yet to have given each a separate room. Here we have the eleven bedrooms:

1	2	3	4	5	6	7	8	9	10	11

"Now," said she, "if two of you gentlemen will go into No. 1, and wait there a few minutes, I'll find a spare room for one of you as soon as I've shown the others to their rooms."

Having thus stowed two gentlemen in No. 1, she put the third in No. 2, the fourth in No. 3, the fifth in No. 4, the sixth in No. 5, the seventh in No. 6, the eighth in No. 7, the ninth in No. 8, the tenth in No. 9, and the eleventh in No. 10. She then came back to No. 1, where, you will remember, she had left the twelfth gentleman along with the first, and said, "I've now accommodated all the rest, and have still a room to spare; so, if one of you will please step into No. 11, you will find it empty." Of course there is a hole in the saucepan somewhere, but we leave the reader to determine exactly where the fallacy is, with just a warning to think twice before deciding as to which, if any, of the travelers was left out.

WISDOM.

THE chains of habit are generally too small to be broken.—*Ex.*

MEN may judge us by the success of our efforts; God looks at the efforts themselves.—*Charlotte Elizabeth.*

MANY a man dreads throwing away his life at once, who shrinks not from throwing it away by piecemeal.—*Howe.*

CONSCIENCE is a delicate seed planted in the heart by God, and no one can so well quicken its growth and blossoming to a fragrant flower as a mother.

THERE is no sin we can be tempted to commit, but we shall find a greater satisfaction in resisting than in committing.—*Mason.*

NOBODY has a right to put another under such a difficulty that he must either hurt the person by telling the truth, or hurt himself by telling what is not true.

STRIKING FACT.—Those who make conscience of speaking the truth, generally prosper in the world; and none are more visibly blasted than those who make no conscience of a lie.

"PUT down on one side of a sheet of paper all the good that ale has done, and on the other all the evil it has done you," said a friend to a thirty-years' drunkard. "That is impossible," was the reply, "for there is not a sheet of paper that ever was made that would contain half of the evil ale has done me."

"MY mother asked me never to use tobacco; I have never touched it from that time to the present day. She asked me never to gamble, and I have never gambled; I can not tell who is losing in games that are being played. She admonished me, too, against hard drinking; and whatever capacity for endurance I have at present, and whatever usefulness I have, I attribute to having complied with her pious and correct wishes. When I was seven years of age she asked me not to drink, and then I made a resolution of total abstinence; and that I have adhered to it through all time, I owe to my mother."—*Thos. H. Benton.*

MIRTH.

"A little nonsense now and then
Is relished by the wisest men."

BOXES, it is said, govern the world—the cartridge box, the ballot box, the jury box, and last, though not least, the bonnet box.

To make a girl love you, coax her to love somebody else. If there is anything that a woman relishes, it is to be contrary.

"I AM not myself to-day," said a bore to a wit. "No matter," was the reply; "whoever else you may be, you're a gainer by the change."

"DRIVER, are you running on time to-day?" asked a passenger in an omnibus. "No, sir," was the keen reply, "we are running for cash."

A QUEER old gentleman being asked what he wished for dinner, replied, "An appetite, good company, something to eat, and a napkin."

The man who called for tea, at an ordinary eating-house, "as strong as the kick of a mule," complains he got it as weak as a good resolution.

AN inquiring citizen of Madison, Indiana, thrust his fingers into a horse's mouth to see how many teeth he had. The horse closed his teeth to see how many fingers the man had. The curiosity of each was fully satisfied.

"CAN you tell me how old the devil is?" asked an irreverent fellow of a clergyman. "My friend, you must keep your own family record," was the reply.

THE following notice is posted conspicuously in a newspaper office out West: "Shut the door, and as soon as you have done talking business, serve your mouth in the same way."

A WYOMING legislator recently advanced the following proposition in a debate on female suffrage: "No woman ain't got no right to set on a jury unless she is a man, and every lawyer knows it, and I don't believe it anyhow."

A FRENCH inventor recently made a public trial of boots designed to aid one to walk on the water. Nothing ever floated more beautifully than those boots did, but the trifling circumstance that they floated wrong side up nearly caused the inventor's death.

A MAN one hundred years old went to have a pair of shoes made. The shop-keeper suggested that he might not live to wear them out, when the old man retorted that he had commenced this one hundred years a good deal stronger then he did the last one.

A YOUNG lady in New Hampshire has just procured a position as school-teacher upon the following certificate: "This is to certify that Tamar Noyes stands on a medium with other girls of her age, and for what I know, is as good as folks in general."

"THAT bed is not long enough for me," said a very tall, gruff Englishman, on being ushered into his bedroom by an Irish waiter at one of our hotels. "Faith, an' you'll find it plenty long, sir, when you get into it," was the reply; "for then there will be two feet more added to it."

AN absent-minded gentleman, writing a letter at the breakfast table, dipped his pen in his coffee and continued his letter. Noticing his mistake, he put a lump of sugar in the ink, and then finding his second blunder, poured the contents of the ink-stand into the coffee-pot to set it right.

THERE is a young lady in Milford, Mass., who has been taking music lessons on the piano for some eight years. The other day she sent an order to a music store in New Haven, and fearing her spelling might not be just right, added this postscript: "You must eskews this letter as I pla bi noat but spel by ere."

THE late Lowell Mason once led the choir in a church where it was the custom to take up the collections during the singing. Determined to put a stop to this, he had an understanding with the collectors to this end. One afternoon, when the usual time for taking the collection came, they kept their seats. The minister inquiring why it was, Mr. Mason said, that as the collection was taken up during the *singing* in the forenoon, they had concluded to have it taken during the *prayer* in the afternoon.

Our Mentorial Bureau.

[In this Department will be noticed such matters as are of interest to correspondents and to the general reader. Contributions for "What They Say" should be brief, pointed, and creamy, to secure publication.]

To Our Correspondents.

QUESTIONS OF "GENERAL INTEREST" ONLY *will be answered in this department. We have no space to gratify idle curiosity. One question only at a time, and that clearly stated, must be propounded, if a correspondent shall expect us to give him the benefit of an early consideration. Questions of personal interest will be promptly answered by letter, if a stamp be inclosed for the return postage. In all cases correspondents should give name and residence, as our time is too valuable to be spent on anonymous letters.*

FRECKLES ON THE FACE OF BEAUTY.—We have received a letter lady-like in style and in the delicate spirit of confidence and sincerity, and also lady-like in its desire to get rid of freckles. The writer says she has used ——, a most poisonous drug, to remove freckles. It was recommended by a neighbor, but meeting a physician who expressed surprise that she was using so virulent a poison, she abandoned it, and the freckles returned worse than before. She now asks us respecting an article advertised by "Dr." ——, of New York, "which will beautify the skin and complexion, and will remove freckles," etc., and desires us to tell her if the "Dr." is reliable and his article likely to produce the result he promises without injury to health. She also inquires respecting a nostrum for the same purpose manufactured by ——, of Boston, and asks if it is injurious, and, finally, asks us to tell her of "something which she can safely use." It will be observed we do not mention the names of the manufacturers or venders of the preparations "for beautifying the complexion and removing freckles," as we do not wish to advertise the quacks and rascals who thus prey upon the credulity of sensitive people.

A fair complexion and a good skin are doubtless very desirable. The eager seeking and using of many villainous nostrums to cure freckles, tan, moth patches, etc., furnish the evidence that woman highly prizes these elements of beauty. Some people have such temperamental constitutions that the skin will be relatively rough or dark, or will be freckled, or pale, or sallow, or *something* undesirable under ordinary conditions. These may spend their money and devote their hope and their time in the use of advertised nostrums, and their money, their hope, and their time will be entirely wasted, and, in addition to this, their general health will suffer, and their skin and complexion will be spoiled.

"But," say the ladies, "if we may not use these advertised specifics, what may we properly do to secure a nice skin and a clear complexion?"

Health is the first element of beauty; and the woman who lives in such a manner as to secure the best of health, will have really the highest order of beauty which belongs to her constitutional make-up. The blonde will still be blonde, and the brunette will still be brunette, each being of its type as beautiful as God ordained. But some people are not fine in figure, graceful in motion, handsome in feature, or brilliant in complexion; and neither the padding nor contracting of parts, by the skill of *modistes*, can rectify the form, nor the patient training of the dancing-master establish easy grace of motion, nor all the drugs of the apothecary or the pigments of the painter give native beauty to the complexion. Health and proper living will do for form, motion, expression, and complexion all that any person can honestly possess, and beauty thus naturally wrought out and wrought in will be real and lasting.

The worst of it all is, that so much thought and care are bestowed on these exterior attractions, and so little on real culture of head and heart. Would a woman be attractive, let her cultivate her mind and her moral power, and no matter how plain the face, if it beam with intelligence and goodness, it will carry with it a fascination which will command love and admiration in spite of its plainness, and secure it in perpetuity. The love of blind persons, we fancy, is very sincere, as they seem to find something besides looks to admire, and we never have felt so highly complimented in any other way as by the affectionate regard of two blind persons.

But there are good, graceful, and naturally beautiful people who, by wrong living, have a sallow, or pale, or muddy complexion, which might be essentially improved. Most people eat too much sugar and fatty matter, and the result is, the blondes are rendered feverish, and their faces break out with pimples, the glands in the neck and elsewhere swell and show symptoms of scrofula, while those of dark or brunette complexion become sallow, bilious, rheumatic, and the complexion is dirty and greasy-looking; and both sorts read quack advertisements of balms and beautifiers of the skin, and pay their money for, and hang their vain hopes upon, these worse than embodied falsehoods—we say worse, because they not only do not cure, but they poison the patient and ruin the skin.

A handsome young lady, of a bright blonde complexion, came to our office for a phrenological de

scription, and just as she was leaving, we asked her if she would like to be rid of the pimples, a myriad of which disfigured her face. The very question excited her hope, and she replied, with enthusiasm, "I would, indeed, sir. What shall I put on? I have tried everything." Our reply was, "Put nothing on, but for three months avoid the use of sugar and oily matter in every form, and your face will be as smooth as you can desire."

"I'll do it," she said, and left with a hopeful and resolute twinkle in her bright, blue eye.

In just a month, instead of three, she came in to report progress, and her face was free from pimples, and had a fresh, clean, peachy appearance. "I have eaten no butter or sugar, or anything that contained them, and you see the happy result," said she. "Now, how much shall I pay you?" We replied, "Nothing; tell the rest of them."

She promised to do it and departed, apparently not quite satisfied that she could not express her thanks with a five dollar bill. "She had spent much on physicians, and grew no better, but rather worse," and now the idea of being cured so simply, so easily, and so effectually, she felt grateful and desired to express her gratitude as she had expressed to the doctors her hopes before, in a "pecuniary consideration." Why did not the doctor tell her? Did he not know the cause and the proper cure? If not, he is to be pitied rather than blamed. When will the people learn by physiology and hygiene how to eat, exercise, and rest, so as to avoid nearly all the illness which afflicts the race?

We know of no way to treat freckles but to use wholesome food and bathe the whole person frequently, and if they will come, let the subject rise above them by making the countenance glow with attractive intelligence. If people who incline to be freckled will live in the dark, the freckles will fade out, and they themselves will be about as white and tender as cellery, which is compelled to grow in the dark under ground, or as potato vines which grow in a dark cellar. We fancy freckles are natural, and, like Roman noses or gray eyes, quack nostrums will not safely or effectually remove them

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BRAIN IMPRISONED.—We find the following in the London "English Mechanic:"

"12,304—PHRENOLOGY.—Will any of 'our' readers who are well up in this subject (*i. e.*, what is usually understood by the term), kindly inform me at what period of the individual's life the characteristic bumps are developed? It appears to me if the brain exercises any influence on the shape of the cranium, it must be before the latter has assumed its osseous nature; hence, if Phrenology is anything worth calling a science, it is placed on the horns of a dilemma; for either the brain must have received its peculiar developments before Education steps in, or the bones of the head are distorted by the soft mass of the brain. I can't believe the latter, and am very doubtful about the former. SAUL RYMEA."

Ans. The skull is formed as a servant for the brain; not as a prison-house, but as a protector. It is a principle in physiology that the hard parts give way for the soft parts. The hard bark of the tree gives way every year for the deposit of the cream-like new ring or grain of wood. When the brain, as a whole, or any particular part of it, requires room, the substance of the bone lying over it is dissolved, absorbed, and sent into the circulation to be deposited elsewhere, and new bony matter is deposited in such a way as to give room for the growing brain. The brain grows according as it is exercised, and the skull gives it room as before described, and this process goes on, sometimes until the man is fifty years of age, as many measurements of heads attest. Usually, however, the head attains its size from the thirtieth to the fortieth year. Of a thousand men engaged in a given pursuit, the heads of men of forty years of age will be found larger than the heads of men of thirty years of age.

Clams and oysters two inches in diameter have shells as thick as an adult human skull, and they are much harder; yet in two years the clam will double in size. How is the hard shell compelled to give place to the soft inhabitant? In a manner precisely as the skull gives place to the brain in the growing human being. The horn of the ox is another example. The growth is from within outwardly, and the hard external protects the soft internal without obstructing its growth. Shell, horn, or skull dissolves like sugar when the growth of their soft inhabitant demands room. The shell has vitality as well as its inhabitant, and is equally subject to the law of growth and change.

The brain gives size and form to the skull, not the skull to the brain. The normal growth of the brain reveals its shape by the form which the skull is compelled to take, and that shape reveals the size of the various mental organs, and by this means we read the character.

How does the bony structure of the child or calf ever become large as in the full-grown man or ox, and each bone retain, all the time, its natural shape, if there is no way by which bone, though hard in material, is permitted to change its particles and readjust its form?

How very critical and incredulous ignorance is, yet how wise and dogmatical!

CHRISTIAN AND INFIDEL.—I am a young man of twenty-one, with considerable obstinacy and large Approbativeness; and having been out in the world for ten years, look older than I am. Now, is there any objection to my marrying a lady two years older than myself, the temperaments, color of the hair, eyes, etc., being very much alike, one of us a member of a church of very strict faith, the other an infidel?

Ans. In general, we think it better for the woman to be two or more years younger than the man, yet there are men who seem older, and are older, by five years than their age by years would indicate. Then there are some women who are particularly youthful for their age. Two persons of this de-

scription might marry, where the woman was four years older than the man, without detriment. If the temperaments, color of hair and eyes are very much alike, that is no objection provided the temperaments, color, etc., are medium. Temperaments are frequently extreme; one is very dark and bony and hardy, the other very light, soft, delicate, and susceptible. Now, for either one of this description to marry one of the same, would be unfavorable. But if a person has a fair blending of all the temperaments, and occupies a medium position in respect to constitutional qualities, he may marry one as nearly like himself as may be, and there is no objection to it.

In respect to being "unequally yoked with unbelievers" (2 Cor. 6–14), there is room for discussion and for the exercise of prudence and wisdom. If one is "obstinate and strong in Approbativeness," he is not likely to be very yielding or conformatory or mellow in his manner toward a companion who differs with him in religious ideas, more especially if he be "infidel;" there may be opportunity for a great deal of inharmony, not to say unhappiness. If a man is positive in his character and is an infidel, he inclines to denounce and ridicule faith and religious feeling; and as a woman, in religious matters, is more dependent upon the peaceful pursuit of her faith than man, just as marriage is more to her than it is to him, because it is her all, while he has the world and business to divide his thought and care, it would look as if such a marriage would not be favorable. Persons of different religious beliefs, their faith being, in the main, in harmony on the subject of God's moral government and human duty toward God and man, there is only the technicalities of creed and the formalities of worship to divide them. The Presbyterian and the Episcopalian have diversities of opinion, but they harmonize in the great essentials of repentance, faith, and godliness. They might differ as to the best ways of worshiping, but their differences would be only, if we may say it, like the garments, not like the manhood itself. When one doubts and derides religion and God, it would seem to be better that he should unite with one who may not be wounded or offended by what may be said. Some men who are "obstinate" marry religious women with the feeling that she may be right and he wrong, and that he may some time come around to her belief, he being willing that she should educate the children to suit herself, he remaining quiet relative to belief. But one who is a talker and writer in the field of infidelity should marry one whose sensitiveness may not be wounded, and whose tenderest sentiments may not be outraged by having her cherished hope of eternal life counted as naught in the presence of her children, who, she believes, should be educated "in the nurture and admonition of the Lord."

We do not say that a man who is not a church member should not marry a woman who is a member of a church, but one who is a pronounced infidel will make a poor woman's life unhappy, or will lead her to renounce her religion so as to keep as much as may be in harmony with her husband. We know men who disbelieve in religious faith of every description, but who are passive, not being disposed to discuss or argue on religious points, and permitting the wife and children to pursue peaceably their religious convictions.

The Jews are strongly set against their people marrying Gentiles; Roman Catholics oppose the marriage of their people with Protestants; the Quakers have discountenanced marrying out of their "Meeting." As a general thing, we believe that it is better for Episcopalians to marry in their own church, for Presbyterians, Baptists, Methodists, Quakers, Jews, and Roman Catholics to do the same; and if one faith is no better than another, the families can at least have peace in themselves on so vital a point as religion. In our work on "Wedlock; or, the Right Relations of the Sexes," this matter is very fully considered.

CHROMO-LITHOGRAPHS. — Will you oblige me by answering, in your valuable JOURNAL, the question which has been debated here, viz., "Is a chromo and a colored lithograph the same?" By so doing you will oblige your old reader, M. A. S., and many others.

Ans. The products of art you mention are not prepared in the same manner, the chromo-lithograph being made by a series of impressions from as many different stones as there are colors in the picture to be imitated, while the colored lithograph depends for its variety of tint upon the touches of an artist after the stone has done its work in printing a one-colored picture on the paper. The chromo-lithograph is superseding the old-fashioned print. In our JOURNAL for March, 1870, a long and interesting article on the subject was given to our readers.

PHRENOLOGY A SCIENCE. — Should Phrenology be classed as a science?

Ans. Please read Combe's "System of Phrenology," which will furnish the philosophy of the doctrines; "How to Read Character," price $1.25, will give you the principles of Phrenology, with numerous illustrations; "What to Do and Why," $1.75, will show its uses in selecting pursuits, and how to educate each man for his proper work.

INJURY TO THE BRAIN.—I take the liberty of addressing you in regard to a question of deep interest to me. I had a severe concussion of the brain last May, from the effects of which I have not fully recovered; loss of memory and pains in the head are the effects. How would you proceed in order to give strength to the brain?

C. L. B.

Ans. When the general health becomes fully restored, if there be no chronic difficulty, the memory will return, and the faculties work with their usual vigor. But there must be temperate living —no smoking, chewing, drinking, or other dissipation.

What They Say.

THE TOBACCO HABIT.—Dear Editor: I notice in your JOURNAL for September an anxious inquirer for a cure for the tobacco appetite. How I do pity any man who will ask such a question! I would like to talk with him a short time and tell him of my experience. I had been a constant user of the weed for forty years, and until two years since, when I laid it away and have not touched it since, nor have I for one moment wished to, and do not think I ever shall again. I would as soon think of cutting off my head as to touch it, and now you or some one may ask how I did it. I will tell you: Just as long as I could keep my will, not to smoke or use tobacco in any form, *stronger* than any desire to smoke (which I had occasionally), just so long I was and am safe. All that is needed is a will—or, rather, a *will not*. I hope this may reach the eye of some poor devil and lead him to try to give up the bad habit, and I hope he may succeed. C. P.

SOURCE OF THE SUN'S HEAT.—Editor of A. P. J.: In the October number of the JOURNAL I see a theory announced under the above caption, and I desire to state a few objections to it.

The writer says, "A ray of light—a quiver, a vibration from the sun—dashes down through the vast fields of ether and enters our atmosphere." The result is heat, generated by friction. Now, one thing is necessary before we can accept this part of the theory. That light is a substance, must be proved. We can not conceive of friction when there is but one body or substance. I think our best scientists are united in considering light as motion, or a mode of motion. Motion is surely not a material substance.

Again, allowing that rays of light are capable of generating heat by their passage through the atmosphere, in what measure can the rays from the moon differ from those from the sun? They are the rays of a self-luminous body reflected from a non-luminous body. The rays are from the same source, only not so intense when they reach our atmosphere. Still another point. If this theory were sound, the greater distance the rays of light traveled through the atmosphere the greater would be the heat. Such is not the case, as every person of common intelligence knows. Allowing for the greater distribution of the rays of light in winter, owing to their oblique descent, the increase in heat from the additional space traversed, would more than balance the difference of area affected by them, and we should have summers at least as cool as the winters. G. E. H.

PHRENOLOGICAL LITERATURE.—A correspondent and warm friend of the JOURNAL writes us with reference to a more diffusive method of extending the doctrines of Phrenology. He counsels the issuing of lectures in pamphlet form, so that we might "instruct classes all over the country." This warm interest pleases us, but we do not think it altogether expedient to follow the suggestion, when there are admirable lectures, viz., George Combe's, already in print, which furnish a succinct yet most clearly-defined and interesting outline of the principles of our science—which we stand ready to furnish on demand (see catalogue) to "all the ministers, students, and very many others through the country, who are looking for something of the kind." Besides, in the JOURNAL itself we have a monthly pamphlet containing valuable phrenological matter adapted to general use.

OUR NEXT PRESIDENT.—The Havre de Grace *Republican* takes exceptions to our platform of principles set forth in a late number, and, instead of indorsing the sort of person we described, says:

"This nation is made up of the peoples of all races, nationalities, and religions; and invidious political distinctions between any of the citizens of this republic on account of religion is anti-republican, and deserves our severest censure and condemnation. Let the citizens of this republic, —Christians, Jews, and Infidels, collectively,— choose, irrespective of his religious opinions, the man they will have to rule over them. In this way only can our democratic institutions be maintained and perpetuated."

While holding to our original proposition, and insisting on having an honest, temperate, and capable statesman for our President, we may ask the Havre de Grace *Republican* whether his "peoples of all races, nationalities, and religions" include women, Indians, negroes, Chinamen, and the rest? Or what does he mean? He has our platform, will he give us his? *We* want a Democratic-Republic "*of* the people, *by* the people, and *for* the people," *not* a monarchy, nor a "ruler."

A SHAKER'S OPINION.—When I sent for the January number of the JOURNAL, as a sample number for this year's labors, I took a notion to enter into membership with the Shakers, feeling that it was more Christ-like than others of the various religious bodies, and freer from selfishness and superstition, and the best place to carry out the divine principles of Phrenology with reference to keeping our baser natures in subjection to our spiritual organization. I brought my JOURNALS with me into the society, and loaned them to the brothers, and they became very much interested in them, and so made up a purse and sent on the money, and are receiving them regularly. I will use my best influence to secure them for the next year also—the PHRENOLOGICAL JOURNAL as well as the "Science of Health." As we have all things in common here, I can not depend upon private resources, but upon the body. I live at the north house, second family, and remain your friend in the true mental science, G. B. G.

The Library.

In this department are given the titles and prices of such NEW BOOKS *as have been received from the publishers. Our readers look to us for these announcements, and we shall endeavor to keep them well informed with reference to the current literature.*

CALIFORNIA: For Health, Pleasure, and Residence. A Book for Travelers and Settlers. By Charles Nordhoff, author of "Cape Cod and all Along Shore," etc., etc. One vol.; octavo; pp. 255; muslin. Price, $2.50. New York: Harper & Brothers.

Among all the books on California and how to go there, with illustrated descriptions of its magnificent scenery, this is the best. The author steps on board a palace railway car in New York, with pencil and paper in hand, and he takes notes by the way. He writes out and sends his descriptions to *Harpers' Magazine*, the *Tribune*, and the *Evening Post*, in which they are published. Then he gathers up these communications, revises them, and adds links here and there to make the chain complete, and with new materials issues a beautiful sectional volume which every American *ought* to possess. We congratulate author, publishers, and readers on this worthy production.

DR. J. J. I. VON DÖLLINGER'S FABLES Respecting the Popes in the Middle Ages. Translated by Alfred Plummer, Fellow and Tutor of Trinity College, Oxford. Together with Dr. Döllinger's Essay on the "Prophetic Spirit and the Prophecies of the Christian Era." Translated for the American Edition, with an Introduction and Notes, by Henry B. Smith, D.D., Professor in Union Theological Seminary, New York. One vol.; 12mo; pp. 463; muslin. Price, $2.25. New York: Dodd & Mead.

Rich in scholarship, vivid in imagination, racy in description, and full of intellectual light. That portion relating to the "Prophetic Spirit and the Prophecies of the Christian Era" interests us most. Here is a paragraph out of the introduction on the point:

"For now, as well as throughout mediæval times, it may be said, in a broad, general view, that Latins and Germans, Guelph and Ghibelline, Ultramontanes and Cismontanes, the South and the North, the Papacy and the Empire, are arrayed against each other, and that the destiny of Continental Europe hangs, as it has for fifteen hundred years, upon the results of this conflict. Besides this, however, the topic itself, as here treated, is of profound interest in its psychological, as well as in its historical and religious, connections. Such a historic review shows that man must look before as well as after; he must remember the past and also strive to anticipate the future, especially in great junctures and crises. Belief in Providence, as well as faith in Scripture, prompts men of deep thought and feeling to ascend some mount of vision, whence they may, perchance, descry the shadows of coming events. Nowhere has this profound theme been treated in so full and compressed a manner as in Dr. Döllinger's admirable summary.

THE MARBLE PROPHECY, and other Poems. By J. G. Holland, author of "Bitter Sweet," "Kathrina," etc., etc. One vol.; 12mo; pp. 112; muslin. Price, $1.50. New York: Scribner, Armstrong & Co.

Dr. Holland puts his thoughts into verse with that grace and freedom which indicate the true poet. His most recent volume contains, besides "The Marble Prophecy," The Wings; Intimations; Words; Sleeping and Dreaming; On the Right; Gradation; Returning Clouds; Eureka; Where Shall the Baby's Dimple Be? The Heart of the War; To a Sleeping Singer; Song and Silence. Here is a taste of the sort of mental pabulum which this "Marble Prophecy" contains:

WANTED.

God, give us men! A time like this demands
Strong minds, great hearts, true faith, and ready hands;
  Men whom the lust of office does not kill;
Men whom the spoils of office can not buy;
  Men who possess opinions and a will;
Men who have honor—men who will not lie;
  Men who can stand before a demagogue
And damn his treacherous flatteries without winking!
  Tall men, sun-crowned, who live above the fog
In public duty, and in private thinking:
  For while the rabble, with their thumb-worn creeds,
  Their large professions and their little deeds,
Mingle in selfish strife, lo! Freedom weeps,
Wrong rules the land, and waiting Justice sleeps!

AUTUMN CATALOGUE and Floral Guide. Containing a choice Collection of Dutch and Cape Flowering Bulbs, consisting of Hyacinths, Tulips, Narcissus, Crocus, Iris, Lilies, Gladiolus, Anemones, Ranunculus, Ixias, Oxalis, Sparaxis, Scillae, Tritonias, etc. With Full and Explicit Directions for Culture, to which is added a Complete List of small Fruits, containing the most Desirable Varieties Cultivated in this Country. For Sale by B. K. Bliss & Sons, Importers of Garden, Vegetable, and Flower Seeds, and Dealers in Agricultural and Horticultural Implements, Fertilizers, and Garden Requisites, 23 Park Place and 20 Murray Street, New York. Pp. 61. Price, 10 cts.

This is the thirteenth annual edition of Bliss' Calalogue, and from its pages may be gleaned full directions for the cultivation and treatment of flowers, plants, bulbs, and shrubs. Why not send for a copy?

BY SUBSCRIPTION.—KEY TO NORTH AMERICAN BIRDS. Containing a Concise Account of every Species of Living and Fossil Bird at present known, from the Continent North of Mexican and United States Boundary. Illustrated by Six Steel Plates, and upward of 250 Wood Cuts. By Elliott Cones, Assistant-Surgeon United States Army. Octavo; pp. 300. Price, $6. Salem: Naturalist's Agency; New York: Dodd & Mead.

The work will be printed at the "Salem Press," upon toned paper, and profusely illustrated with cuts, mostly drawn from nature, and engraved expressly for this purpose. The volume will be published in the autumn. It is the intention of

both author and publishers to make the work in every way worthy of the American student, and in order that it may be brought into general use as a text-book, the first edition will consist of twenty-two hundred copies. It is believed that it will hold the place in relation to the study of Ornithology that Packard's "Guide to the Study of Insects" and Gray's "Manual of Botany" do in their respective fields. ——

JOHNSON'S NATURAL PHILOSOPHY, and Key to Philosophical Charts. Illustrated with 500 Cuts; being reduced Photographic Copies of all the Diagrams contained in the author's Philosophical Series of Indestructible School Charts. For the Use of Schools and Families. By Frank G. Johnson, A.M., M.D. One vol.; octavo; pp. 494; muslin. Price, $3.50. New York: J. W. Schermerhorn & Co.

Among the modern school-books, excellent as many of them are, this takes the lead, both as to the method of arrangement and the excellence of its mechanical execution. We do not find a feature to criticise. The student is led along step by step, and each object or principle in natural philosophy is so explained and illustrated that all is made clear to the simplest mind. It is only a "play spell" to follow such an author, and yet one learns, and remembers what he learns. We trust the publishers will find it to "pay" to print school-books as they have this, in the highest style of the art. ——

THE MINISTRY OF SONG. By Frances Ridley Havergal. 24mo; pp. 205; green and gold. Price, $1.50. New York: De Witt C. Lent & Co.

To praise a beautiful poem is like praising one of the rarer beauties of nature—the rose, for example—yet we can not refrain from an expression of admiration when we read the one, or when we behold the other. The "Ministry of Song" is condensed sweetness. Here is a sample of its exquisite flavor:

"Sing to the little children,
And they will listen well;
Sing grand and holy music,
For they can feel its spell.
Tell them the tale of Jephthah;
Then sing them what he said—
'Deeper and deeper still,' and watch
How the little cheek grows red,
And the little breath comes quicker;
They will ne'er forget the tale,
Which the song has fastened surely,
As with a golden nail."

The publishers have made it no less attractive to the eye than the author has made it to the ear and the heart. ——

THE POLYTECHNIC: A Collection of Music for Schools, Classes, and Clubs. Compiled and Written by U. C. Burnap and Dr. W. J. Wetmore. One vol.; octavo; pp. 208; muslin. Price, $1.25. New York: J. W. Schermerhorn & Co.

The most popular melodies by the leading masters, ancient and modern, are given in this "Polytechnic." We have Auber, Verdi, Offenbach, Bellini, Adam, Donizetti, Gottschalk, Massé, Gounod, Rossini, and others; school songs, college songs, and hymns, with music the most tuneful and ear-haunting. The book will, or should, find its way at once to all music circles, in schools, and in families. ——

SMALL-POX: the Predisposing Conditions and their Preventives. With a Scientific Exposition of Vaccination. By Dr. Carl Both. Second edition. 12mo; pp. 82. Price, 75 cts. Boston: Alexander Moore.

The author is opposed to vaccination, and in favor of the liberal use of common salt. He accounts for the comparative absence of small-pox in Boston by stating that more salt is used in that city than elsewhere. Conclusion: If you would escape the small-pox, use plenty of salt. We demur: Salt is not food, but a drug—in excess can not be digested, and has no business in the stomach. ——

STUDIES OF CHARACTER FROM THE OLD TESTAMENT. By Thomas Guthrie, D.D. One vol.; 12mo; pp. 436; muslin. Price, $1.50. New York: Robert Carter & Brothers.

Than the study of human character what is there, what can there be, more instructive or more interesting? In this volume we have the careful analysis by a master mind of the following characters: Abraham, the friend of God; Eliezer, the pattern servant; Joseph, the successful man; Moses, the patriot; Joshua, the colonist; Caleb, the soldier; Boaz, the farmer; Ruth, the virtuous; Gideon, the deliverer; Hannah, the matron: Samuel, the ruler; Jonathan, the friend; David, the afflicted man; Solomon, the wise man; Rehoboam, the foolish man; Jehu, the zealot, etc. A galaxy of greatness described, if not in words that burn, in language that impresses and inspires. ——

PREMIUMS PAID TO EXPERIENCE. Incidents in my Business Life. By Edward Garrett, author of "Occupations of a Retired Life," etc. One vol.; 12mo; pp. 378; muslin. Price, $1.75. New York: Dodd & Mead.

The best intimation we can give of the objects of the writer is to copy his chapter headings, under which he writes. They are these: A Well Without Water; Wheat and Tares; The Wisdom of Fools; The Gain of Loss; A Sin of Omission; A Good Situation; An Israelite Indeed; The Cracking of Thorns. The book is a kind monitor, full of useful, practical advice and suggestions which every young man will do well to read and to heed. ——

TRAVELS IN SOUTH AFRICA. Compiled and Arranged by Bayard Taylor. One vol.; 12mo; pp. 336; muslin. Price, $1.50. New York: Scribner, Armstrong & Co.

It is not enough that Livingstone, Moffat, Anderson, Cummings, Baker, Grant, Speke, Magyar, Du Chaillu, Stanley, and others should describe parts and places of this wonderful country, but our own native American explorer, Bayard Taylor, who began on FOOT to "see the world," while yet in his